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SPACE SHUTTLE ORBITER TRIMMED CENTER-OF-GRAVITY EXTENSION STUDY: VOLUME V - EFFECTS OF CONFIGURATION MODIFICATIONS ON THE AERODYNAMIC CHARACTERISTICS OF THE 140A/B ORBITER AT MACH NUMBERS OF 2.5, 3.95 AND 4.6

W. Pelham Phillips
and Roger H. Fournier

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NASA
National Aeronautics and
Space Administration
Langley Research Center
Hampton, Virginia 23665

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Langley Research Center

SUMMARY

Supersonic aerodynamic tests were conducted in the Langley Unitary Plan Wind Tunnel to determine the effects of wing fillet and canard modifications on the longitudinal and lateral-directional characteristics of a 140A/B Space Shuttle Orbiter configuration.

The significant effect of the modifications was to reduce the static longitudinal stability. The modifications also provided slight stabilizing increments in directional stability at high angles of attack.

All of the modifications moved the trimmed center-of-gravity location forward relative to the baseline configuration, and the increments decreased with increasing Mach number. The largest forward center-of-gravity increment was obtained for the large canard which provided a 2.5 percent of length extension of the orbiter center-of-gravity envelope.

INTRODUCTION

The longitudinal center-of-gravity range of the Space Shuttle Orbiter for trimmed flight during entry, approach, and landing is quite limited. This puts a considerable constraint on the allowable mass distribution of shuttle payloads. In an effort to extend the orbiter center-of-gravity envelope, a study was undertaken at the Langley Research Center to determine the feasibility of developing simple, "bolt-on" modifications. Modifications which were studied included changes in fuselage nose shape and wing fillet planform and the addition of fixed canard surfaces. Systems design analyses were undertaken to determine the weight penalties (ref. 1), and aerodynamic heating tests and analyses provided information on the impact of the modifications on thermal protection system requirements (ref. 2). Wind-tunnel force and moment tests were conducted across the speed range to assess the effectiveness of the modifications in extending the center-of-gravity envelope and the influence of the modifications on flight characteristics. Hypersonic aerodynamic characteristics of the modifications are presented in references 3 and 4, and transonic characteristics in reference 5.

The purpose of this paper is to present the effects of planform fillet and canard modifications on the aerodynamic characteristics of the 140A/B

orbiter configuration at Mach numbers from 2.5 to 4.6. This Mach number range is of significance since the most forward center-of-gravity location for the Space Shuttle Orbiter configuration is defined by the longitudinal trim capability at a Mach number of approximately 5. The investigation was conducted in the high Mach number test section of the Langley Unitary Plan Wind Tunnel at Mach numbers of 2.5, 3.95 and 4.6 for a Reynolds number of 2.2×10^6 based on fuselage reference length. The angle-of-attack range extended from approximately -1° to 31° at sideslip angles of 0° and 5°.

SYMBOLS

The aerodynamic data are presented about the body system of axes with only the lift-drag ratios presented about the stability axes. All the aerodynamic data contained herein were nondimensionalized using the baseline model values for wing reference area, span, and mean aerodynamic chord. The moment reference point is located at 65 percent of the fuselage reference length (i.e., 21.38 cm (8.42 in.)) aft of the model nose. Values are given in both SI and US Customary Units. When two symbols are listed for an aerodynamic coefficient, the second symbol applies to the computerized tabulation of coefficients in the appendix.

A	aspect ratio
b	wing span, 23.79 cm (9.37 in.)
$\bar{c}$	mean aerodynamic chord, 12.06 cm (4.75 in.)
C_A, CA	axial-force coefficient, $\frac{\text{axial force}}{q_\infty S_{ref}}$
C_D, CD	drag coefficient, $\frac{\text{drag force}}{q_\infty S_{ref}}$
C_L, CL	lift coefficient, $\frac{\text{lift force}}{q_\infty S_{ref}}$
C_ℓ, CBL	rolling-moment coefficient, $\frac{\text{rolling moment}}{q_\infty S_{ref}\, b}$
C_{ℓ_β}	$\left(\frac{\Delta C_\ell}{\Delta \beta}\right)$ $\beta = 0^\circ, 5^\circ$; per degree
C_m, CLM	pitching-moment coefficient, $\frac{\text{pitching moment}}{q_\infty S_{ref}\, \bar{c}}$

C_N,CN	normal-force coefficient, $\frac{\text{normal force}}{q_\infty S_{ref}}$
C_n,CYN	yawing-moment coefficient, $\frac{\text{yawing moment}}{q_\infty S_{ref} b}$
C_{n_β}	$\left(\frac{\Delta C_n}{\Delta \beta}\right)$ $\beta = 0^o, 5^o$; per degree
C_Y,CY	side-force coefficient, $\frac{\text{side force}}{q_\infty S_{ref}}$
C_{Y_β}	$\left(\frac{\Delta C_Y}{\Delta \beta}\right)$ $\beta = 0^o, 5^o$; per degree
L/D	lift-drag ratio
ℓ_{ref}	fuselage reference length, 32.77 cm (12.90 in.)
M	Mach number
q_∞	free-stream dynamic pressure, Newtons per meter^2 (lb/ft^2)
R_ℓ	free-stream Reynolds number based on ℓ_{ref}
S_{ref}	wing reference area, 0.02 m^2 (0.27 ft^2)
x_o,y_o	model stations, cm (in.)
α	angle of attack, deg
β	sideslip angle, deg
δ_{BF}	body-flap deflection angle (positive for trailing edge down), deg.
δ_e	elevon deflection angle (positive for trailing edge down), deg.

δ_{SB} split-rudder flare angle (positive for trailing edges deflected outboard), deg.

Model Configuration Components:

B_1WVS_0EF baseline 140A/B orbiter configuration

B_1 baseline fuselage forebody

C_3 small canard with flat-plate airfoil sections

C_4 large canard with flat-plate airfoil sections

E baseline elevon

F baseline body flap

S_0 baseline planform fillet

S_2 fillet modification having planform geometry similar to a strake

V baseline vertical tail

W baseline wing (outboard panel) having a leading-edge sweep of 45°

APPARATUS AND TESTS

Model

Geometric details of the model used in the wind-tunnel investigation are shown in figure 1 and table I with model photographs in figure 2. The baseline configuration (fig. 1(a)) was an 0.01-scale model of the Rockwell International 140A/B Space Shuttle Orbiter configuration described in reference 3. The model had a removable forebody and removable components in the wing planform fillet region which allowed geometry modifications. The modifications shown in figures 1(b) and 1(c) consisted of one wing planform fillet configuration, S_2, and two canard configurations, C_3

and C_4. All configurations of the present investigation incorporated a split-rudder flare angle of 55°.

The leading edge of the S_2 fillet modification produced a planform shape very similar to a strake (fig. 1(b)). Fillet S_2 had a leading-edge sweep angle of 67.4° extending outboard to y_o = 3.584 cm and x_o = 12.929 cm. At this point the fillet leading-edge sweep increased to 85°, and the effective fillet intersection with the outboard wing panel was the same as for the baseline fillet (S_0) intersection. The streamwise sections of this modified fillet were faired with the outboard wing panel and had leading-edge radii identical to those of the baseline fillet, S_0.

Canards C_3 and C_4 (fig. 1(c)) had flat-plate sections with rounded leading edges and sharp trailing edges. The leading-edge sweep angles for canards C_3 and C_4 were 55.0° and 54.7°, respectively. The trailing edges of canards C_3 and C_4 were formed by circular arc segments having radii of 5.245 cm and 6.217 cm, respectively.

Tests

The investigation was conducted in the high Mach number test section of the Langley Unitary Plan Wind Tunnel (ref. 6) at Mach numbers of 2.5, 3.95 and 4.6. Free-stream Reynolds number (based on fuselage reference length) for the investigation was approximately 2.2×10^6. Test angles of attack were varied from about -1° to 31° at 0° and 5° of sideslip. An internally mounted six-component strain-gage balance was used to measure aerodynamic forces and moments acting on the model. Corrections have been applied to the angles of attack and sideslip to account for sting and balance deflections produced by aerodynamic loads on the model.

Transition strips were located behind the leading edges of all model components using singly spaced Carborundum grains having a nominal grain diameter of 0.061 cm. The streamwise locations of the transition strips were 3.05 cm behind the fuselage nose and 1.02 cm behind the leading edges of the wing planform fillets, canards, wing, and vertical tail.

RESULTS AND DISCUSSION

Aerodynamic data obtained in the present study are tabulated by run number in the appendix which also includes a Data Set/Run Number Collation Summary (table II) to expedite the location of data for a particular configuration and test condition.

Longitudinal Aerodynamic Characteristics

The longitudinal aerodynamic characteristics for the baseline orbiter configuration, B_1WVS_0EF, are shown in figure 3 for two sets of control deflections: δ_e = -40°, δ_{BF} = -11.7° and δ_e = 10°, δ_{BF} = 16.3°.

Effects of the various configuration modifications are presented in figures 4 to 6 and may be indexed as follows:

Effect of modification	Figure
S_2 fillet	4
C_3 canard	5
C_4 canard	6

Effect of planform fillet reshaping.- Replacing the baseline planform fillet, S_0, with planform fillet S_2 (fig. 4) produced slight increases in $C_{N\alpha}$ accompanied by significant reductions in longitudinal stability levels over the Mach number range of the investigation. Also noted were slightly increased L/D values attributable to planform fillet S_2.

Effects of canards.- Addition of the two canards C_3 and C_4 (figs. 5 and 6, respectively) also produced significant destabilizing shifts in the pitching-moment coefficient with C_4, the large-canard, producing the largest increment. Lift-to-drag ratio increments due to both canards were insignificant at a Mach number of 2.5. The C_3 canard provided slightly increased L/D values at angles of attack from approximately 9° to 24° at the higher Mach numbers investigated for $\delta_e = 10^\circ$, $\delta_{BF} = 16.3^\circ$. The large canard C_4 produced slight increases in L/D at M = 3.95 and 4.6 for moderate angles of attack for both the negative and positive longitudinal control deflection conditions investigated.

The addition of canard C_3 resulted in aerodynamic characteristics similar to those noted for the configuration with the S_2 fillet modification. The selection of one of these two modifications should therefore depend on other considerations such as aerodynamic heating and effects on aerodynamics at other speeds.

Effects of modifications on forward c.g. trim capability.- The effects of the modifications to the 140A/B orbiter configuration in terms of center of gravity (c.g.) forward movement are summarized in table III. The c.g. locations herein were determined for nominal angles of attack representative of entry flight conditions. To achieve conservative forward c.g. limits with the controls set at their maximum nose-up trim conditions ($\delta e = -40^\circ$, $\delta BF = -11.7^\circ$) the nominal angles of attack were incremented $\pm 4^\circ$ and a ΔC_m margin of -0.015 was used. For the analysis of the aft c.g. trim conditions ($\delta e = 10^\circ$, $\delta BF = 16.3^\circ$) a ΔC_m margin was not required since the controls are not set at the maximum values.

All modifications shifted the trimmed c.g. locations forward with the increments decreasing with increasing Mach number. The large canard modification, C_4, provided the largest c.g. shift (2.5 percent of body length) at M = 4.6. The S_2 planform fillet modification was also considered effective with a 2.0 percent increment at M = 4.6. The small C_3 canard modification resulted in a forward increment of 1.0 percent at M = 4.6.

Lateral-Directional Aerodynamic Characteristics

The effects of planform fillet modification S_2 and canards C_3 and C_4 on the lateral-directional aerodynamic characteristics of the baseline configuration with $\delta_e = -40^\circ$ and $\delta_{BF} = -11.7^\circ$ (forward trim condition) are presented in figure 7 and figure 8 for the aft trim condition. In general, the fillet and canard modifications increased the directional stability at the moderate-to-high angles of attack investigated with the increments decreasing with increasing Mach number. Slight increases in positive effective dihedral $(-C_{l_\beta})$ attributable to the fillet modification and canard additions occurred at $M = 2.5$ and moderate angles of attack. The control settings had minimal impact on these lateral-directional trends.

SUMMARY OF RESULTS

Tests were conducted in the Langley Unitary Plan Wind Tunnel to determine the effects of wing planform fillet modifications on the longitudinal and lateral-directional characteristics of a 140A/B Space Shuttle Orbiter configuration. Results are summarized as follows:

1. The significant effect of the wing fillet modification, S_2, and the canards C_3 and C_4 was to destabilize pitching moments. The modifications also produced slight stabilizing increments in directional stability at high angles of attack.

2. The most forward center-of-gravity locations for the modified configurations were ahead of those for the baseline 140A/B configuration, and the increment decreased with increasing Mach number. The largest forward c.g. increment was obtained for the large C_4 canard modification which provided a 2.5 percent of length extension.

REFERENCES

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2. Dunavant, James C.: Space Shuttle Orbiter Trimmed Center-of-Gravity Extension Study. Vol. III - Impact of Retrofits for Center-of-Gravity Extension on Orbiter Thermal Protection System. NASA TM X-72661, 1979.

3. Bernot, Peter T.: Space Shuttle Orbiter Trimmed Center-of-Gravity Extension Study. Vol. I - Effects of Configuration Modifications on the Aerodynamic Characteristics of the 140 A/B Orbiter at Mach 10.3. NASA TM X-72661, 1975.

4. Scallion, William I.; and Stone, David R.: Space Shuttle Orbiter Trimmed Center-of-Gravity Extension Study. Vol. IV - Effects of Configuration Modifications on the Aerodynamic Characteristics of the 139B Orbiter at Mach 20.3. NASA TM X-72661, 1978.

5. Phillips, W. Pelham: Space Shuttle Orbiter Trimmed Center-of-Gravity Extension Study. Vol. II - Effects of Configuration Modifications on the Aerodynamic Characteristics of the 140 A/B Orbiter at Transonic Speeds. NASA TM X-72661, 1976.

6. Schaefer, William T., Jr.: Characteristics of Major Active Wind Tunnels at the Langley Research Center. NASA TM X-1130, 1965.

TABLE I.- MODEL GEOMETRY

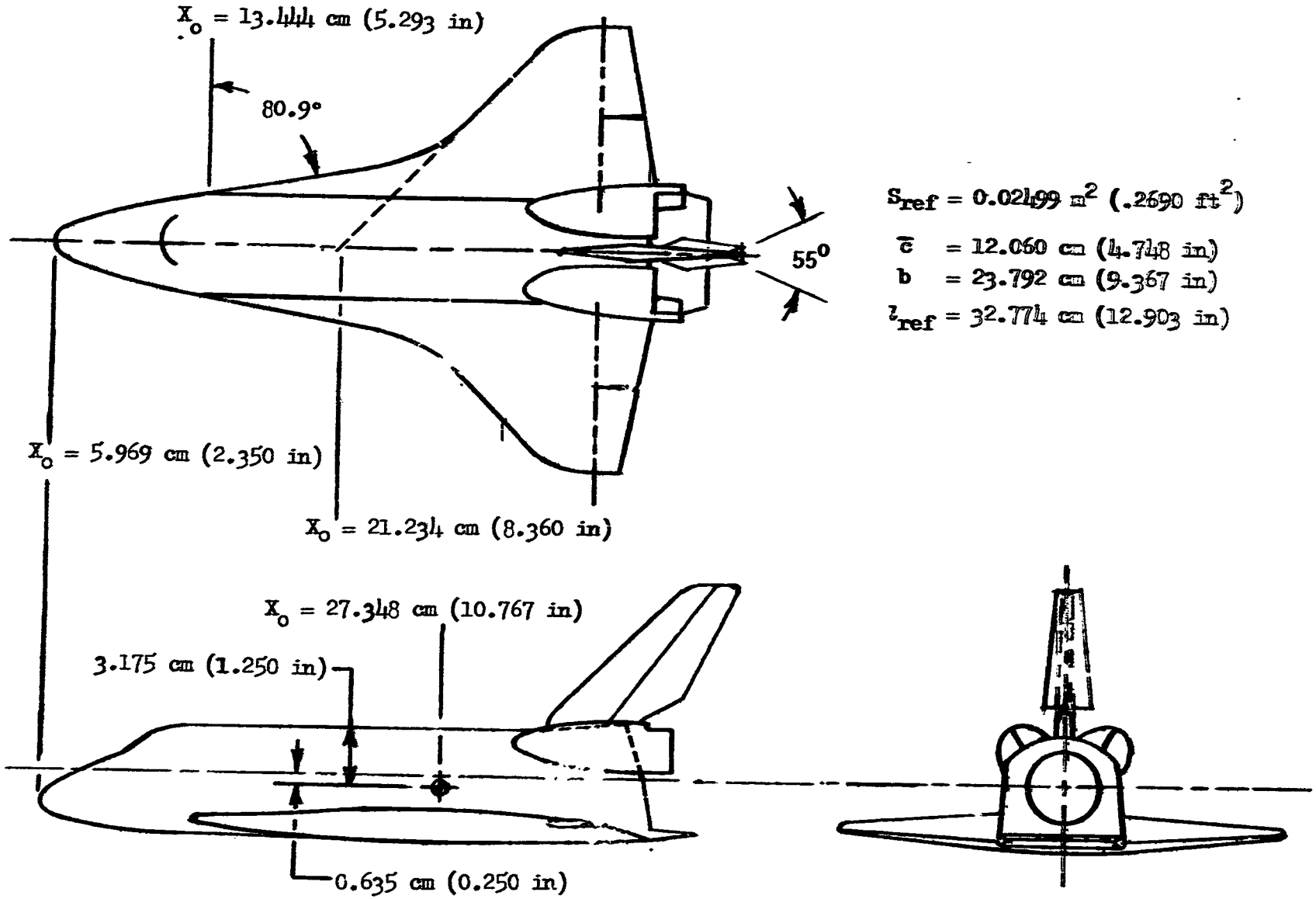
Theoretical wing:	
Area, planform, m^2 (ft^2)	0.02499 (0.2690)
Area, elevon, m^2 (ft^2)	0.001951 (.0210)
Span, cm (in.)	23.792 (9.367)
Chord, centerline root, cm (in.)	17.507 (6.892)
Chord, tip, cm (in.)	3.501 (1.378)
Taper ratio	0.20
Aspect ratio	2.265
Leading-edge sweep angle, deg	45.0
Trailing-edge sweep angle, deg	-10.0
Dihedral angle, deg	3.5
Incidence angle, deg (yo = 5.056 cm)	0.5
Twist angle, deg	3.0
Airfoil section, tip	0012-64 modified
x_0, wing leading edge, plane of symmetry	21.234 (8.360)
Wing planform fillet S_0, baseline:	
Leading-edge sweep angle, deg	80.9
x_0, wing leading-edge (theoretical) intersection cm (in.)	25.984 (10.230)
Wing planform fillet S_2:	
Leading-edge sweep angle (forward portion), deg	67.4
Leading-edge sweep angle (aft portion), deg	85.0
x_0, intersection of forward and aft fillet leading edges, cm (in.)	12.929 (5.090)
x_0, intersection of aft fillet and theoretical wing, cm (in.)	25.984 (10.230)

TABLE I.- CONCLUDED

Canard C_3:	
Exposed area, m^2 (ft^2)	0.001241 (0.013363)
Leading-edge sweep angle, deg	54.7
Canard C_4:	
Exposed area, m^2 (ft^2)	0.002544 (0.027388)
Leading-edge sweep angle, deg	54.7
Vertical tail:	
Area (theoretical), m^2 (ft^2)	0.003839 (0.041325)
Leading-edge-sweep angle, deg	45.0
Root chord (theoretical), cm (in.)	6.820 (2.685)
Tip chord (theoretical), cm (in.)	2.755 (1.085)
Span, cm (in.)	8.019 (3.157)
Fuselage:	
Maximum cross-sectional area, m^2 (ft^2)	0.003595 (.0387)
Length, cm (in.)	32.774 (12.903)
Maximum width, cm (in.)	6.797 (2.676)

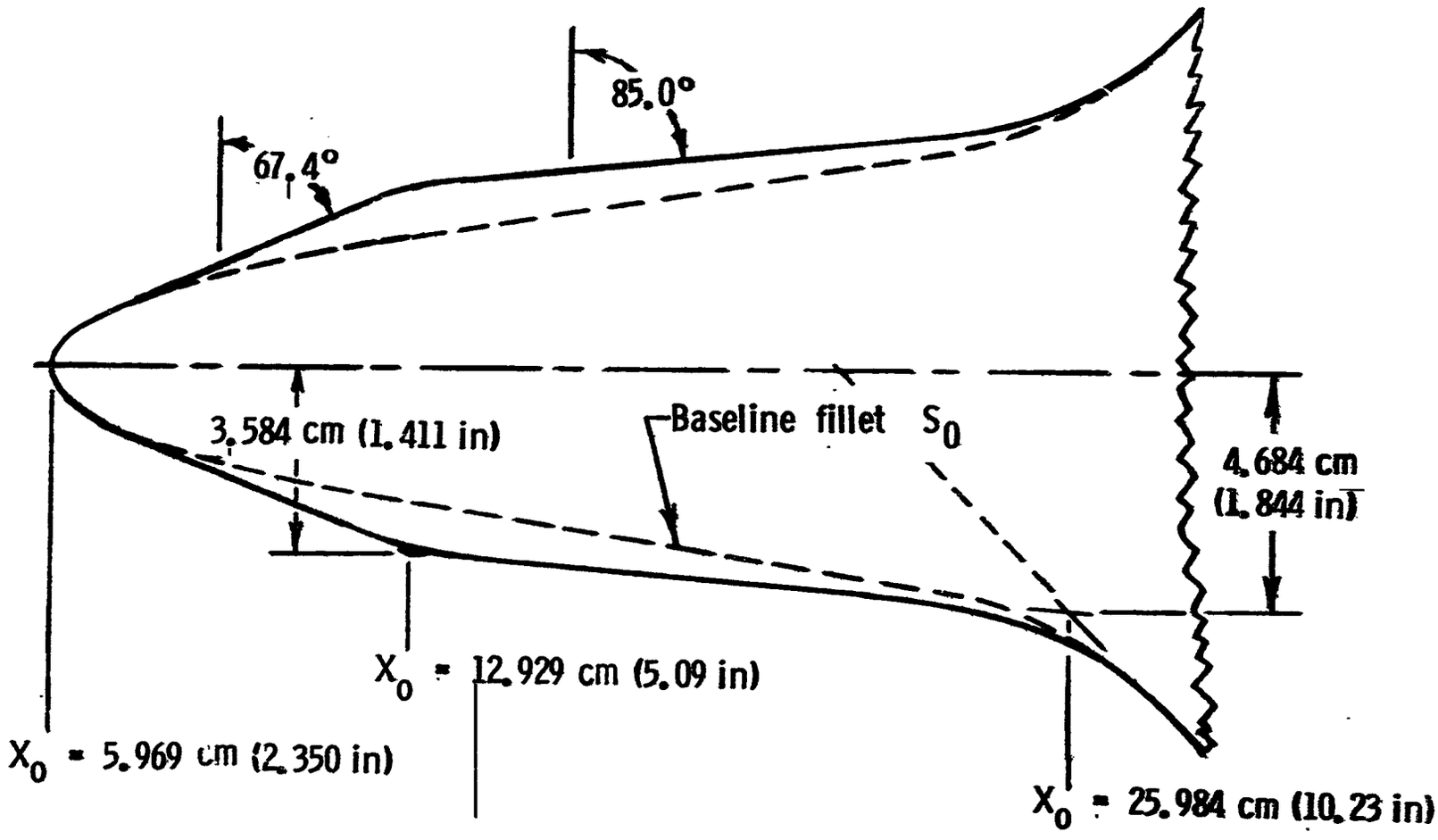
TABLE III.- SUMMARY OF LONGITUDINAL TRIM CHARACTERISTICS

Configuration modification	Mach number	Flight nominal α, deg	Trimmed center of gravity, $\frac{x}{\ell}_{ref}$		Forward c.g. increment, $\frac{\Delta x}{\ell}_{ref}$
			Most forward (ΔC_m = -0.015)	Most aft (ΔC_m = 0.0)	
None (Baseline)	2.5	13.2±4	63.4	69.6	-
↓	3.95	18.2±4	64.2	69.2	-
↓	4.6	20.1±4	64.3	69.0	-
S_2	2.5	13.2±4	60.6	67.2	2.8
↓	3.95	18.2±4	61.8	67.0	2.4
↓	4.6	20.1±4	62.3	67.0	2.0
C_3	2.5	13.2±4	60.8	66.9	2.6
↓	3.95	18.2±4	62.3	66.9	1.9
↓	4.6	20.1±4	62.5	66.8	1.8
C_4	2.5	13.2±4	59.5	66.1	3.9
↓	3.95	18.2±4	61.6	66.1	2.6
↓	4.6	20.1±4	61.8	66.0	2.5



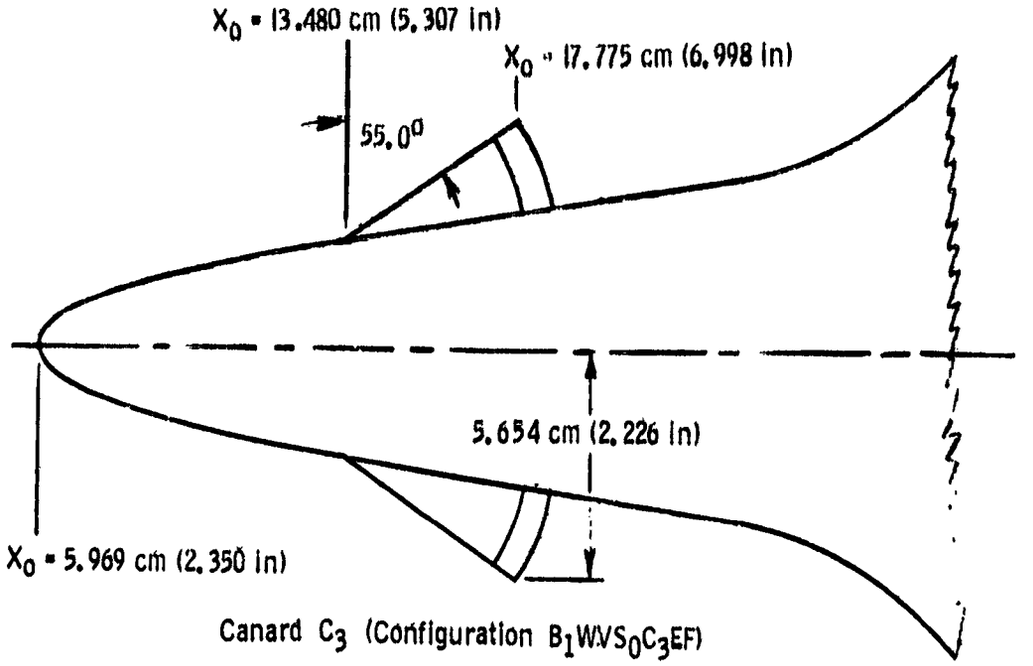
(a) Three-view of baseline orbiter model (Configuration B_1WVS_0EF)

Figure 1.- Model drawings.

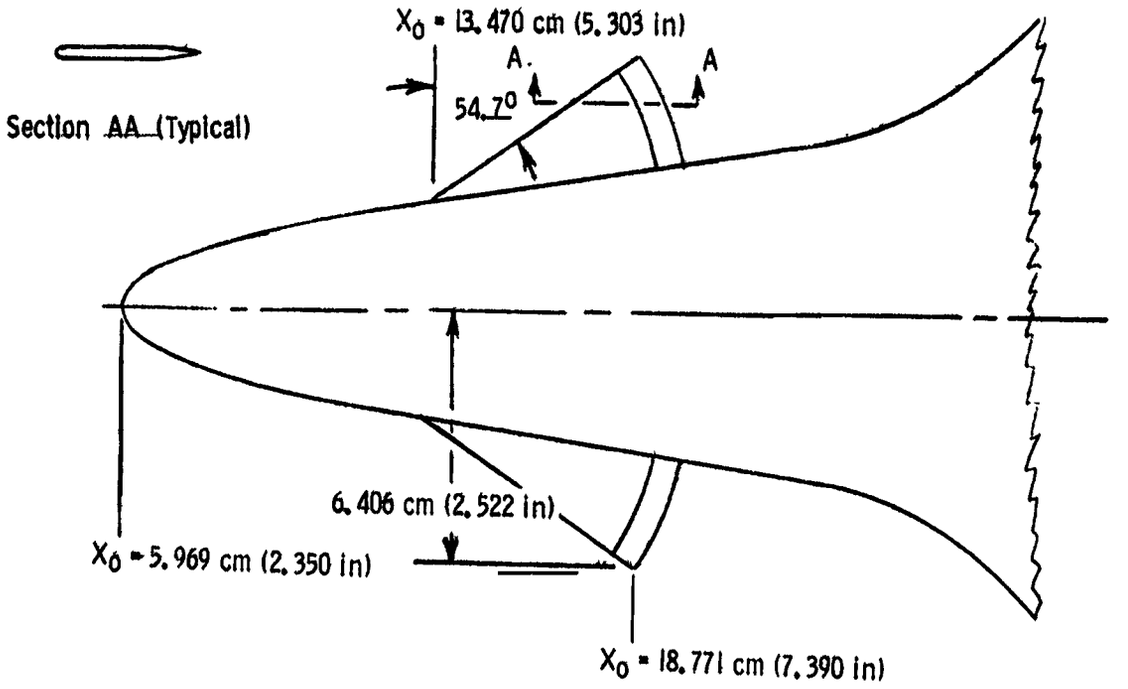


(b) Fillet S_2 (Configuration B_1WVS_2EF)

Figure 1.- Continued.



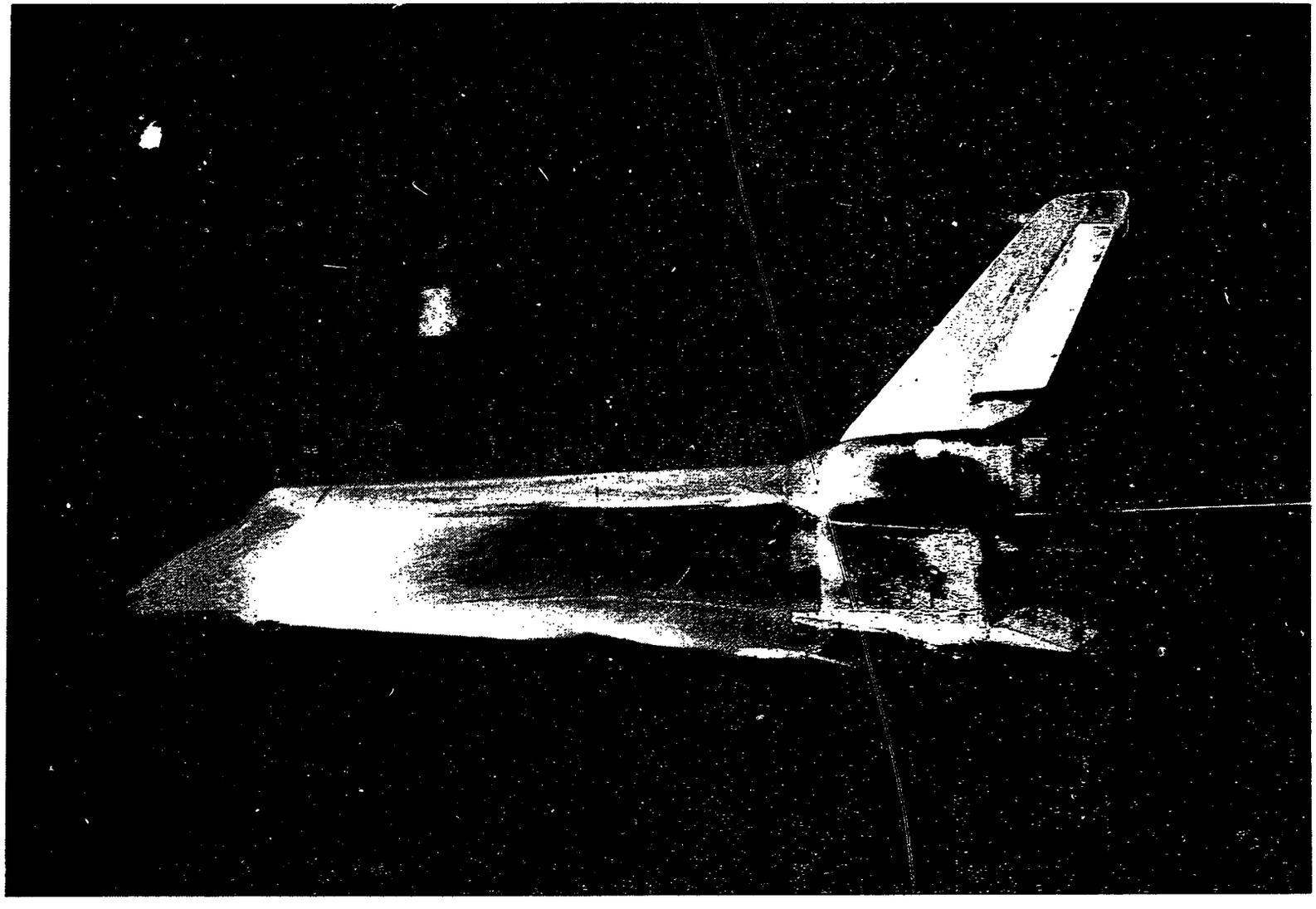
Canard C_3 (Configuration $B_1WVS_0C_3EF$)



Canard C_4 (Configuration $B_1WVS_0C_4EF$)

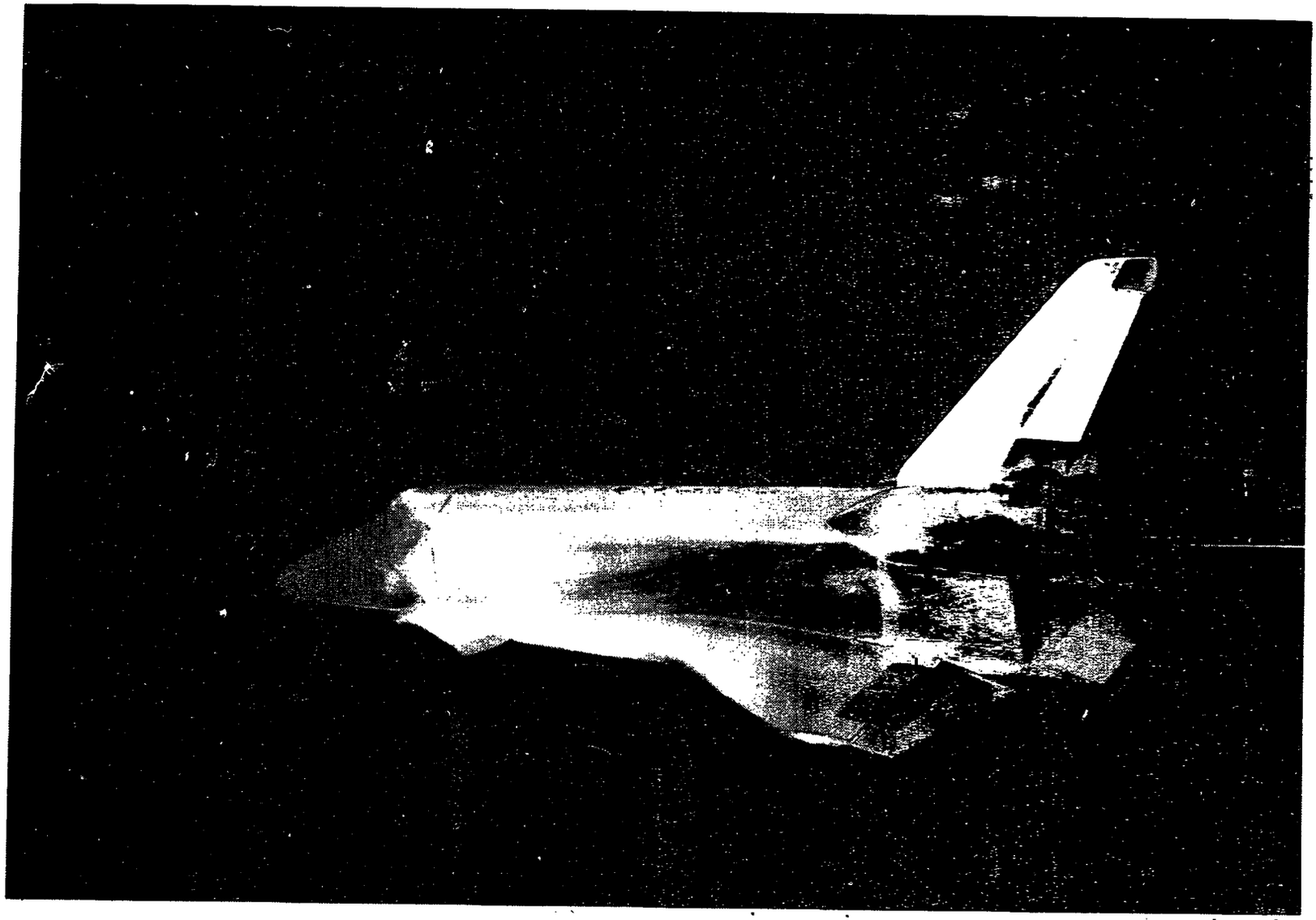
(c) Canards C_3 and C_4

Figure 1. - Concluded.



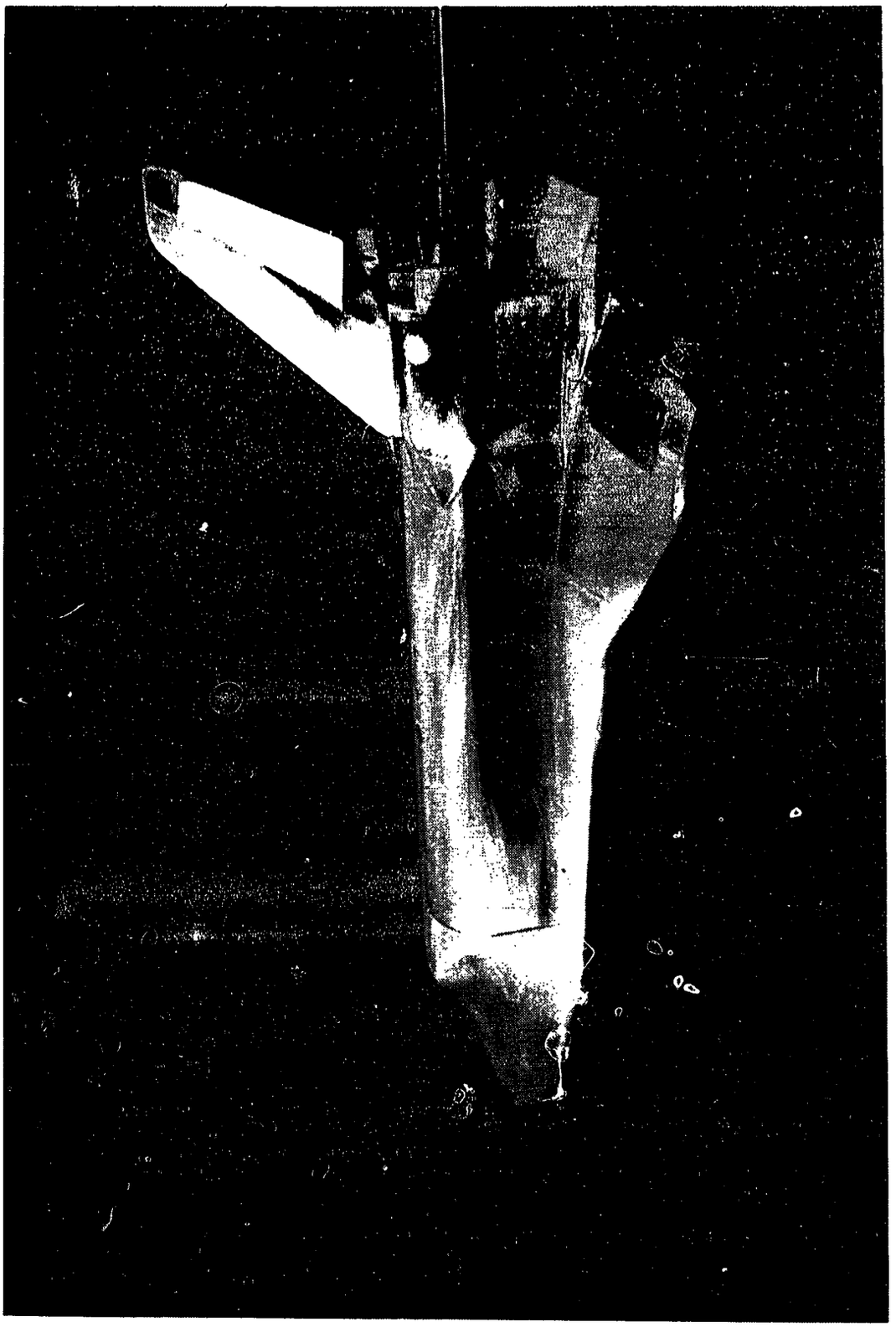
(a) Baseline 140A/B Orbiter Model (Configuration B_1WVS_0EF).

Figure 2.- Photographs of several test configurations.



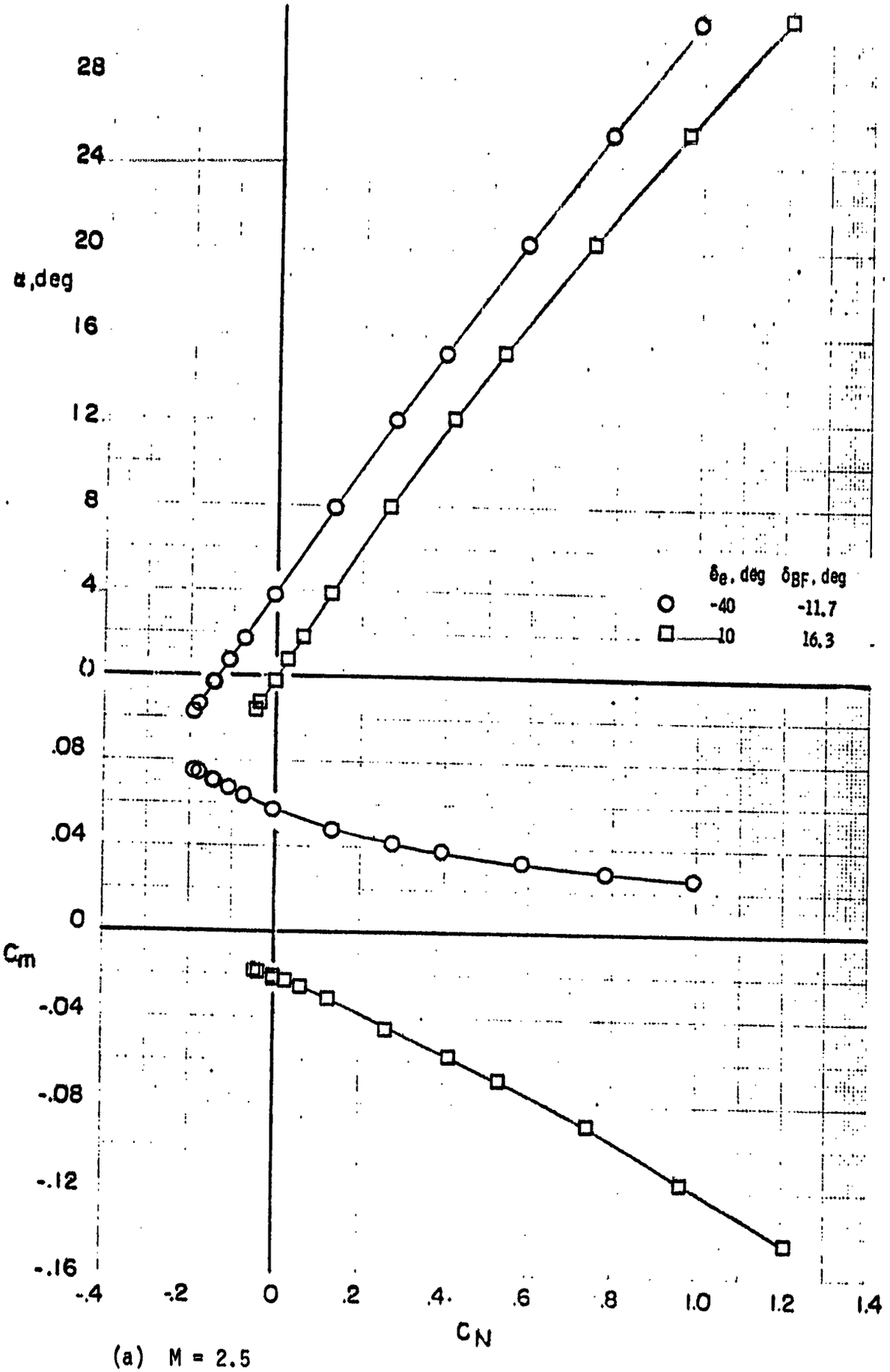
(b) Modified model with C_3 canard
(Configuration $B_1WVS_0C_3EF$)

Figure 2.- Continued.



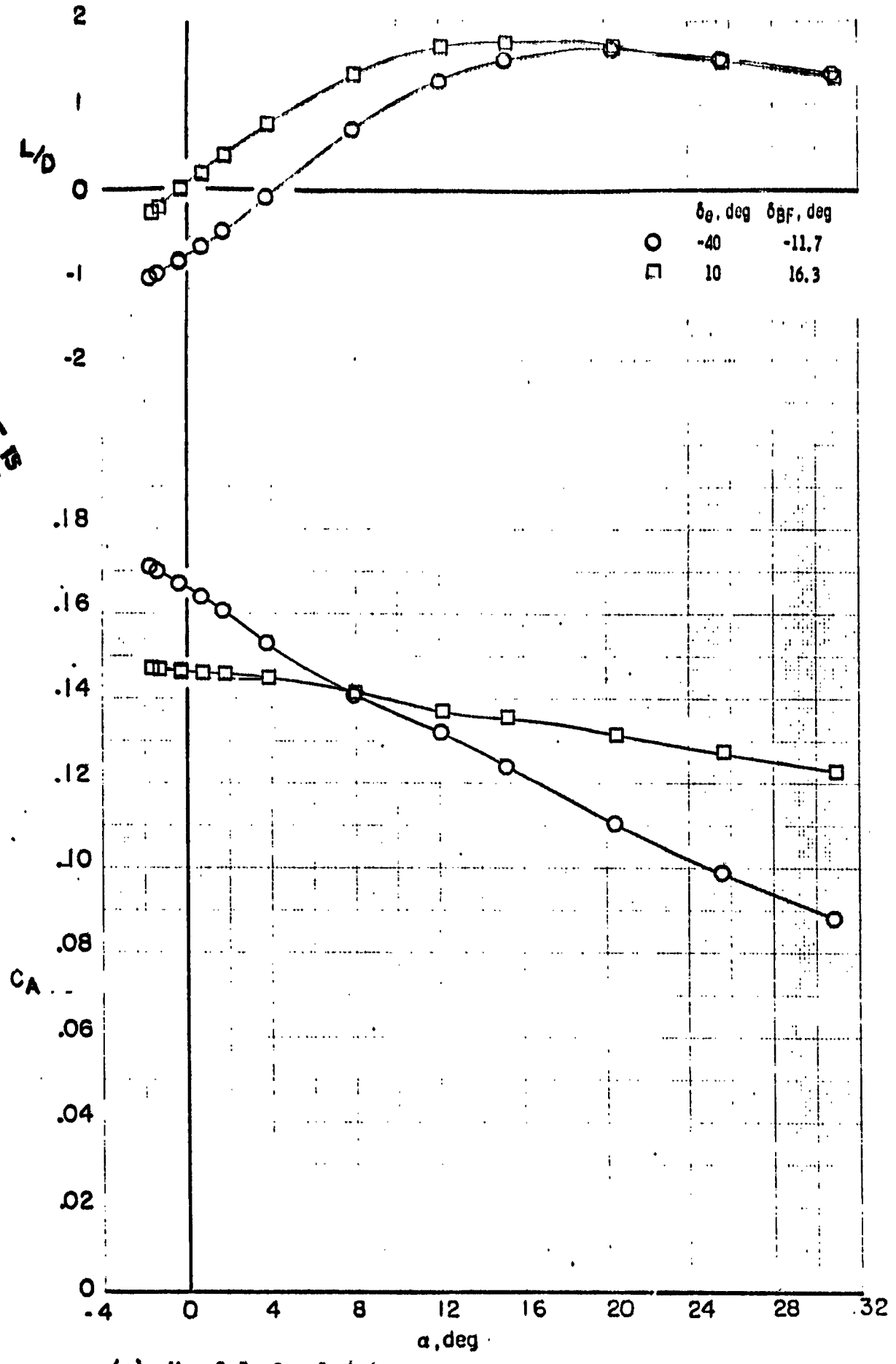
(c) Modified model with S_2 fillet (Configuration B_1WS_2EF)

Figure 2.- Concluded.



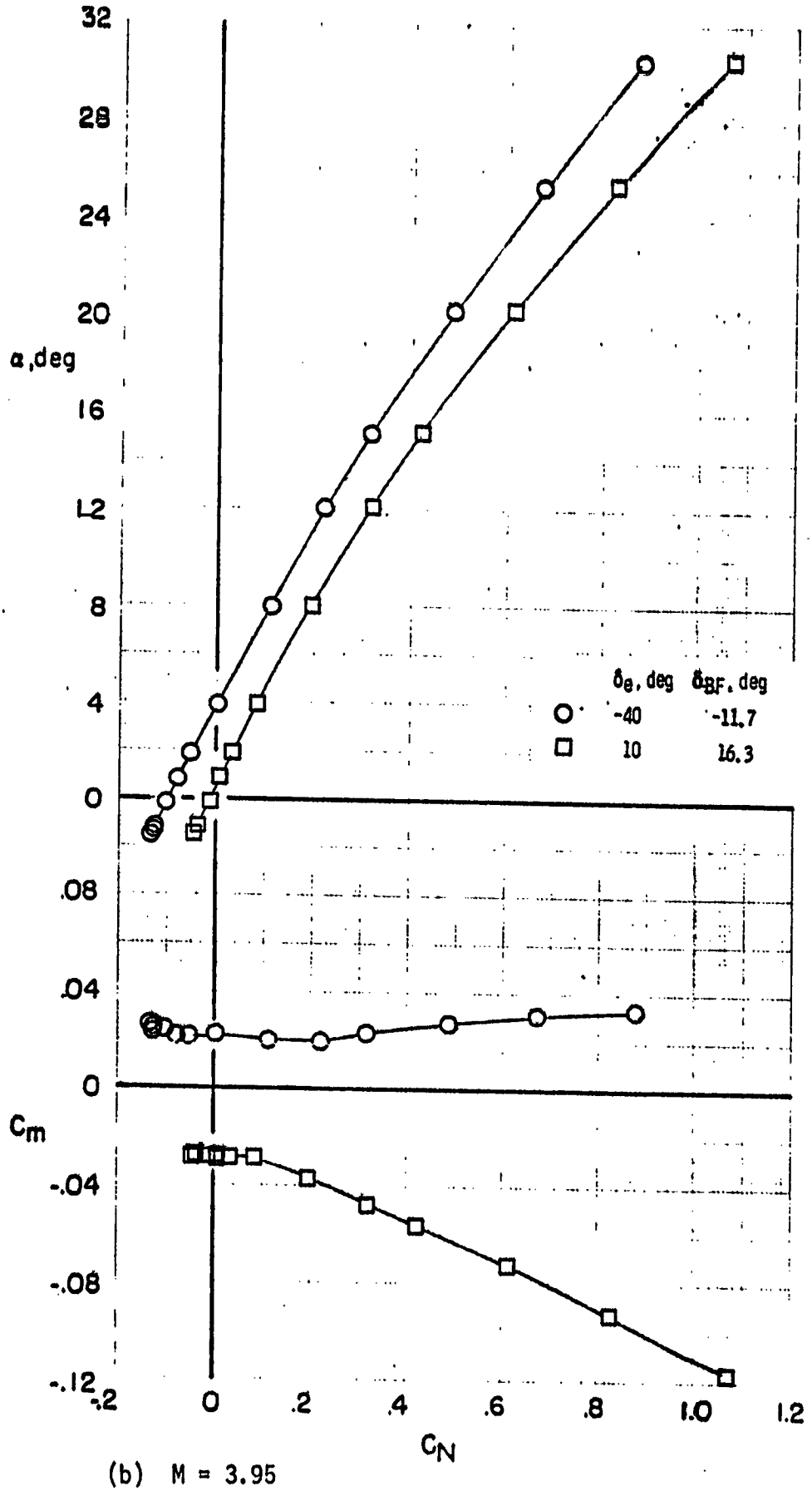
(a) M = 2.5

Figure 3.- Longitudinal aerodynamic characteristics for the baseline configuratio' B_1WVS_0EF. $\delta_{SB} = 55^0$.



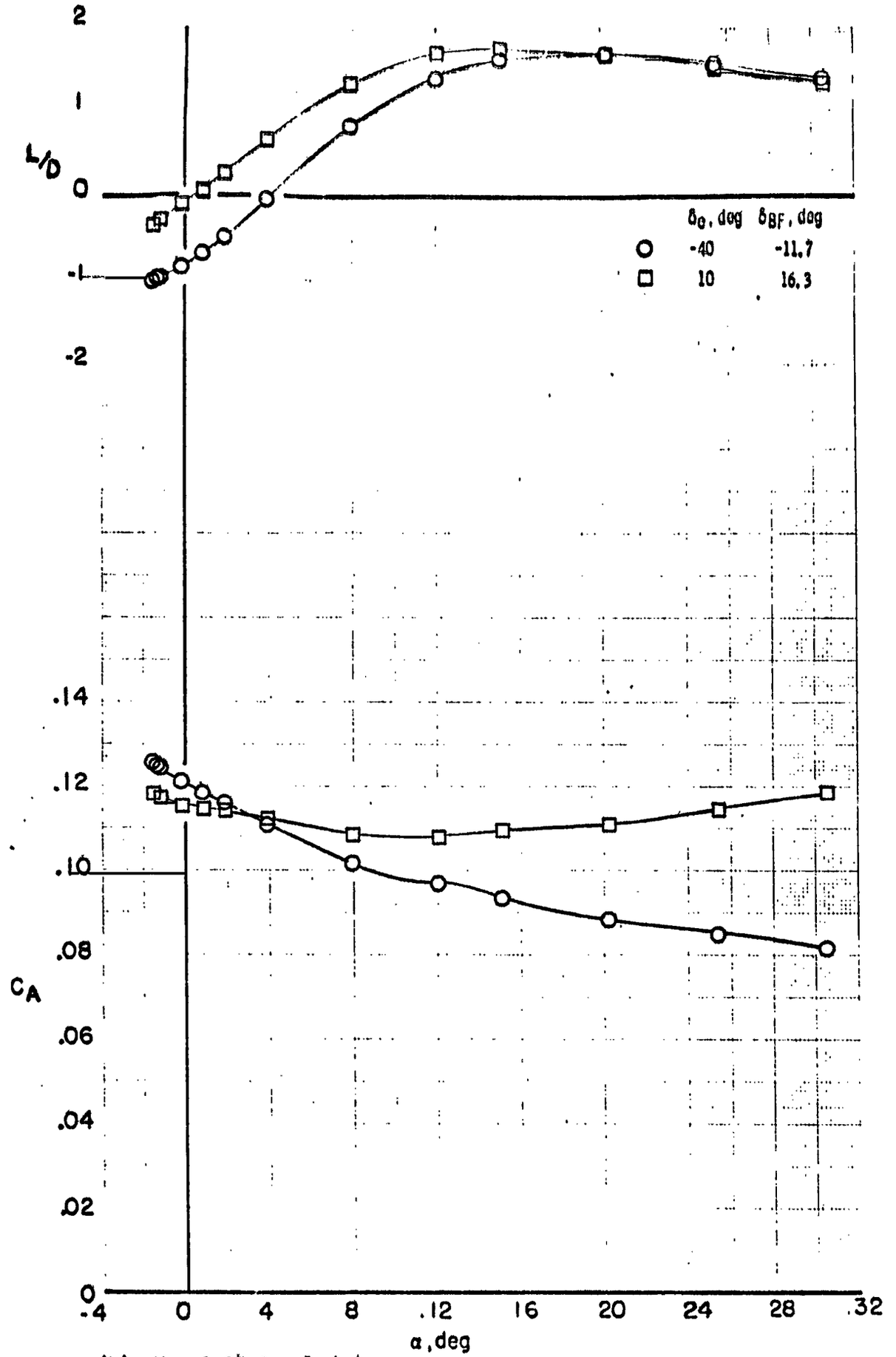
(a) M = 2.5 Concluded.

Figure 3.- Continued.



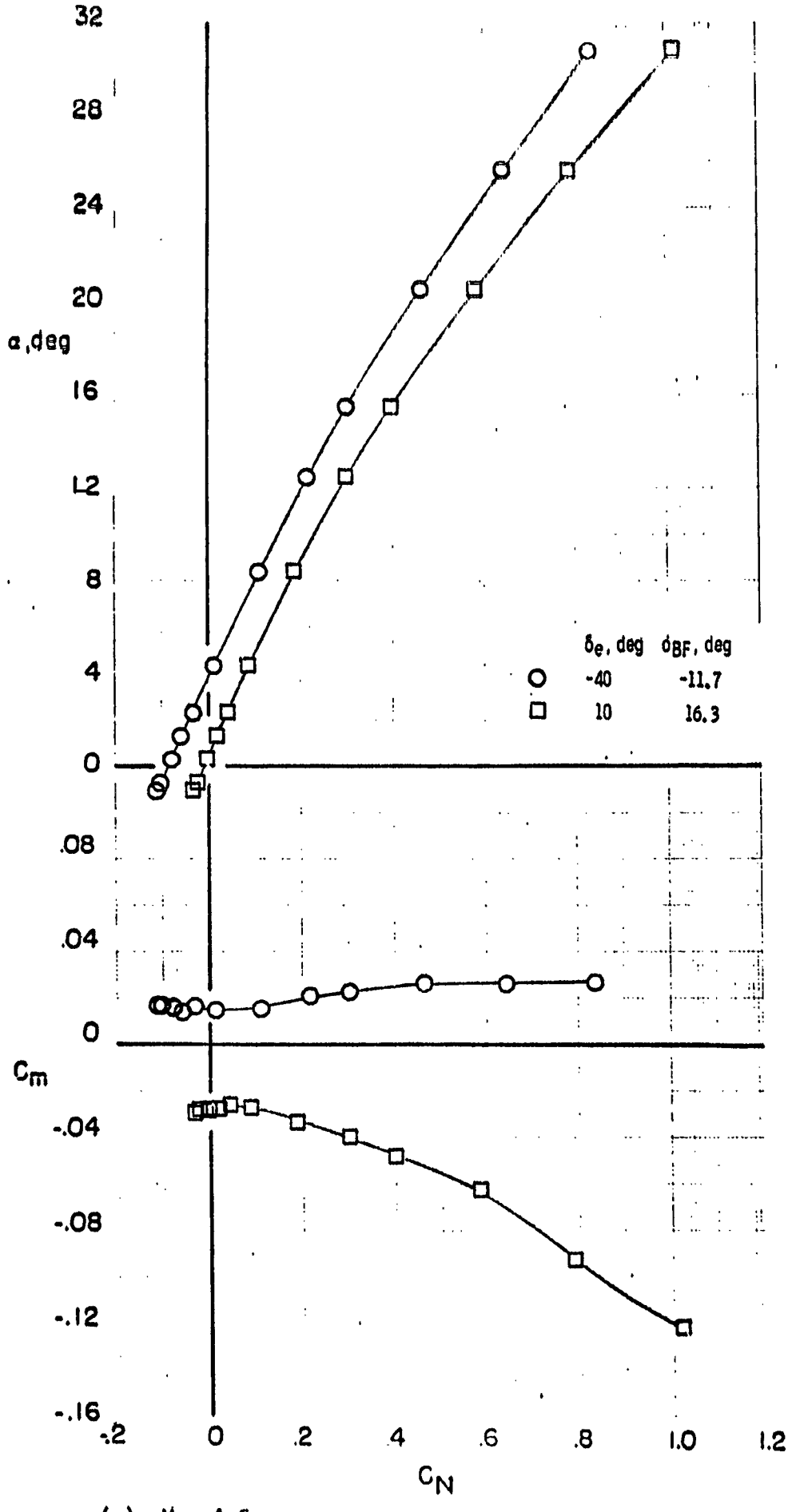
(b) M = 3.95

Figure 3.- Continued.



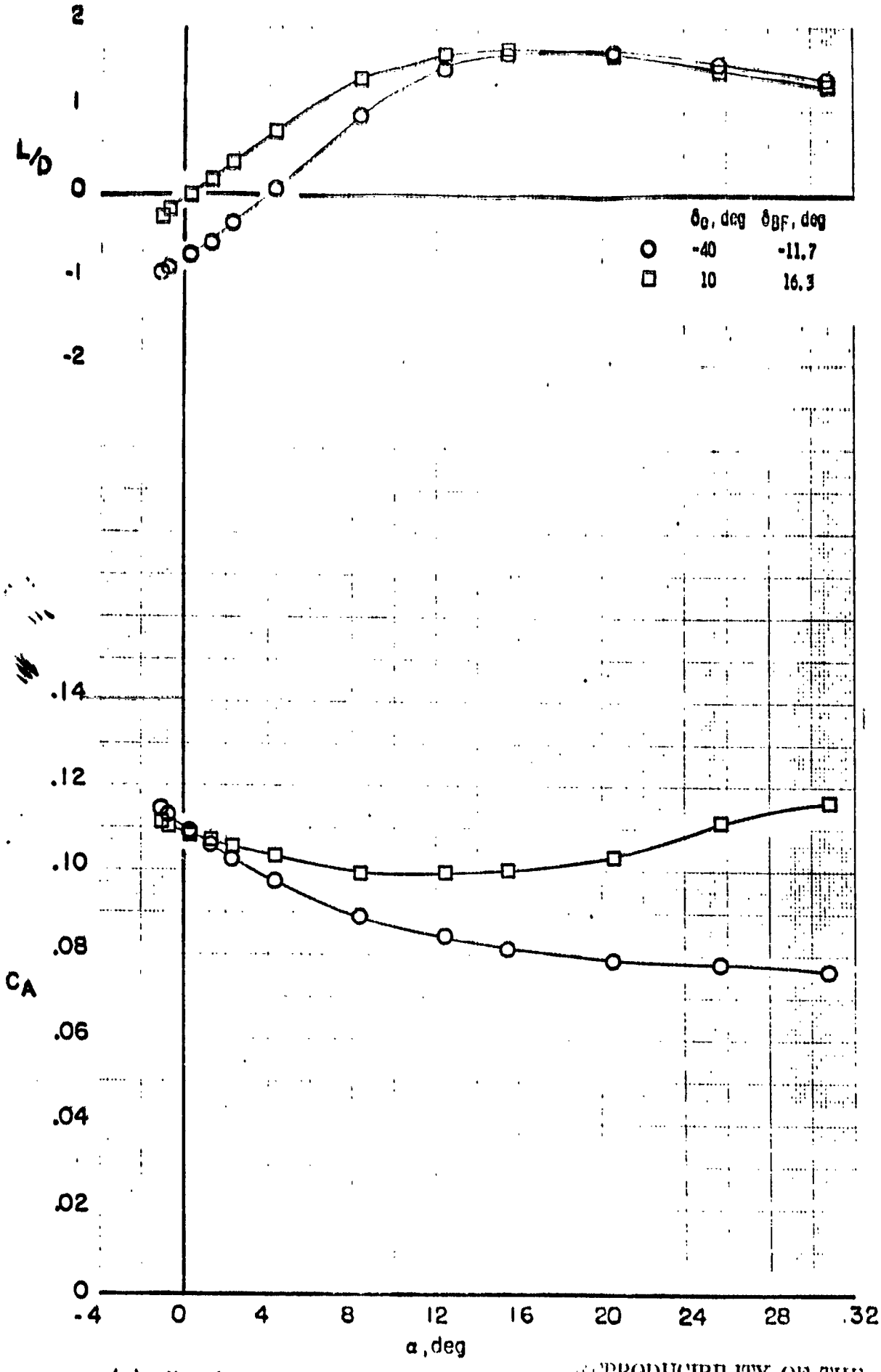
(b) M = 3.95 Concluded

Figure 3.- Continued.



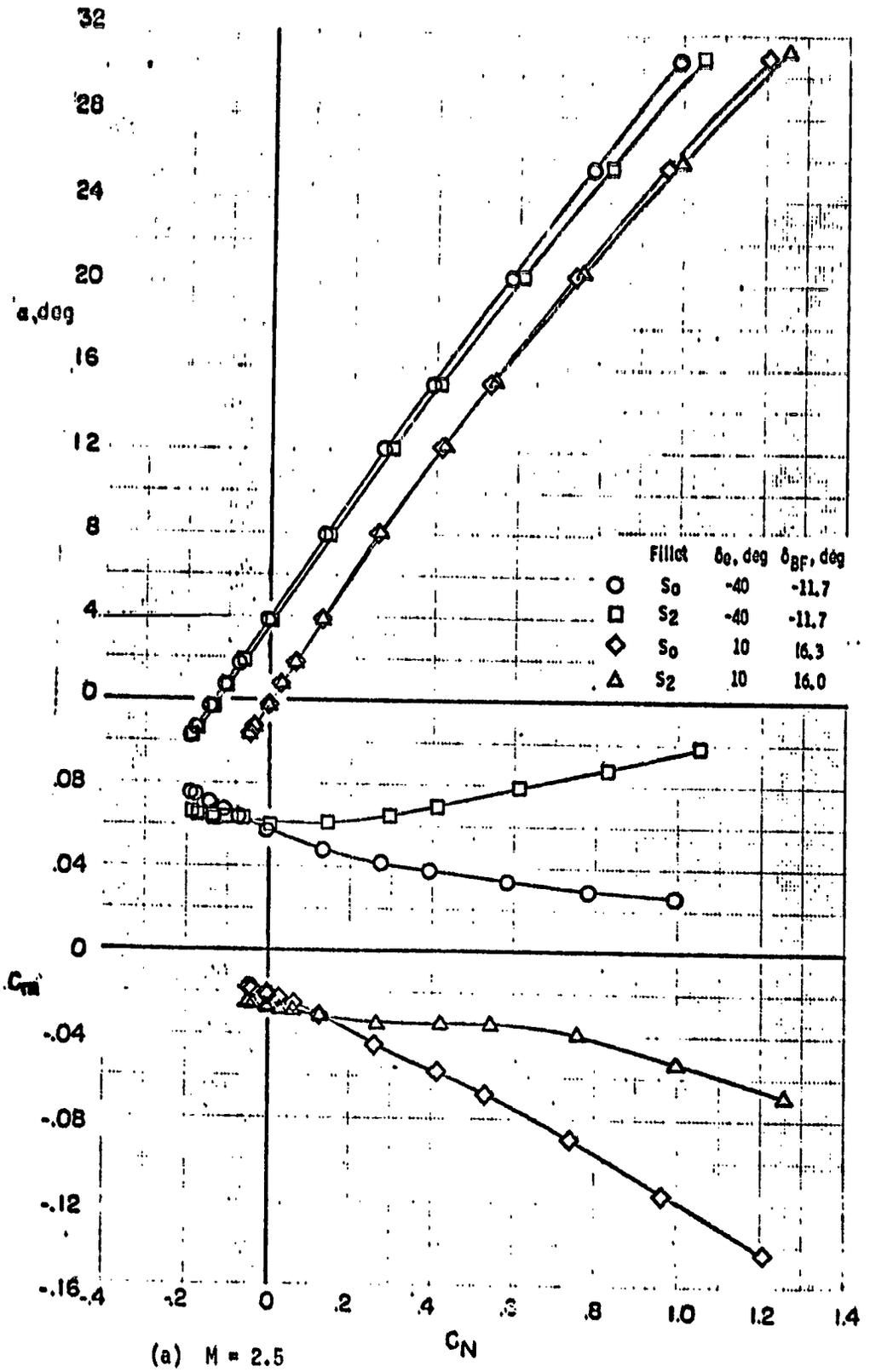
(c) M = 4.6

Figure 3. - Continued.



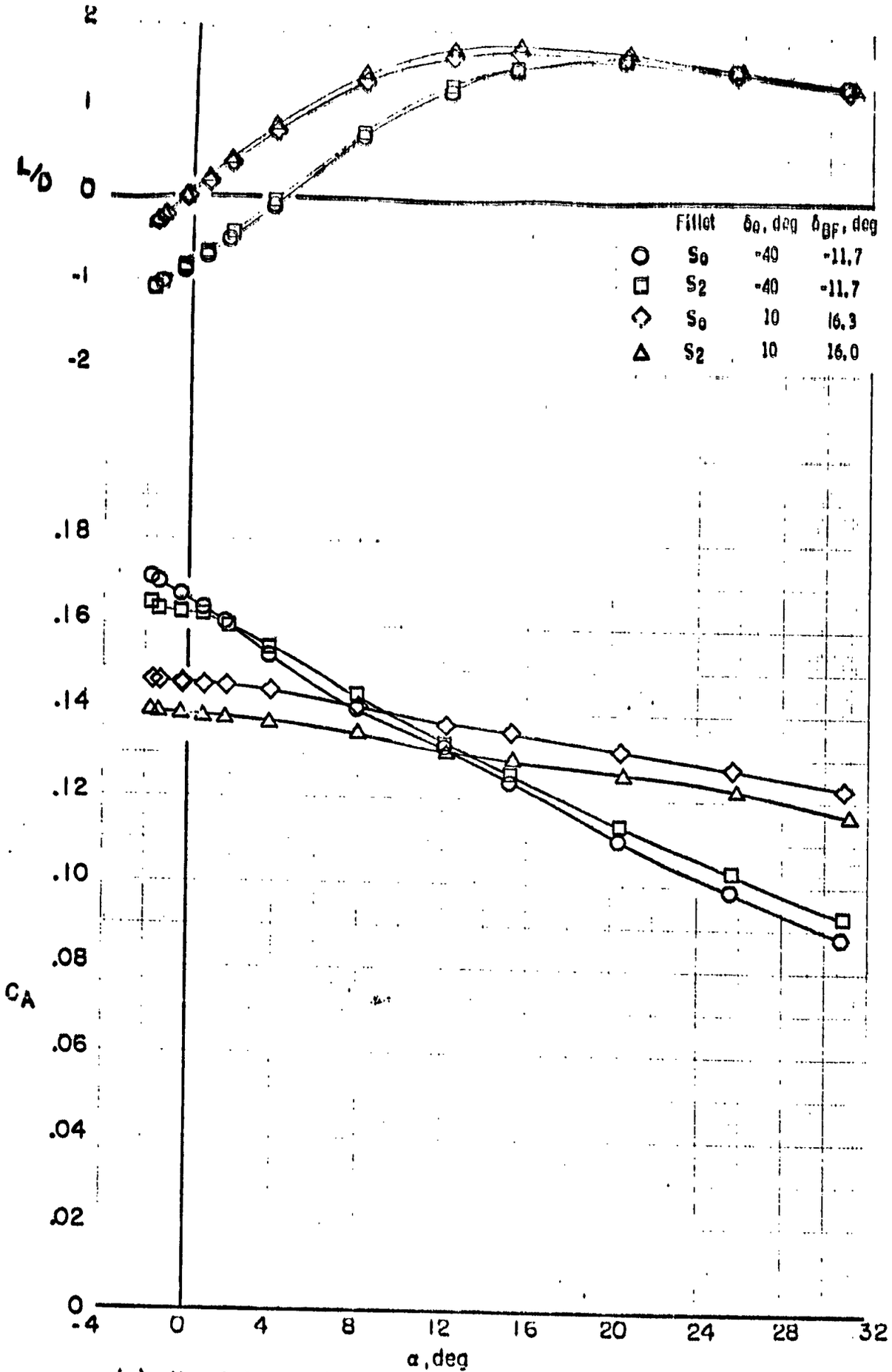
(c) M = 4.6 Concluded.

Figure 3.- Concluded.



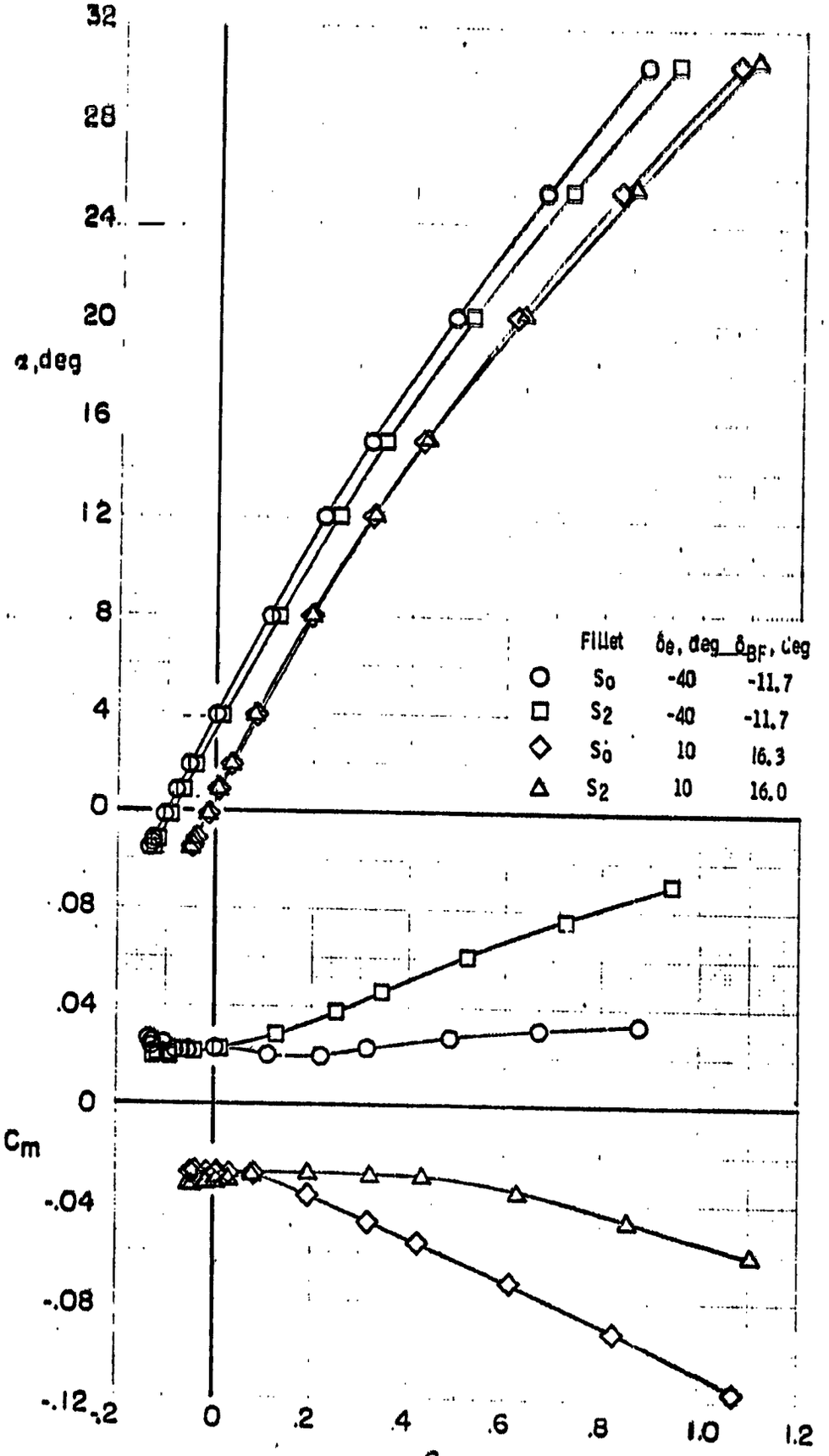
(a) M = 2.5

Figure 4.- Effect of planform fillet S_2 on the longitudinal aerodynamic characteristics for configuration B_1WVS_0EF $\delta_{SB} = 55^\circ$.



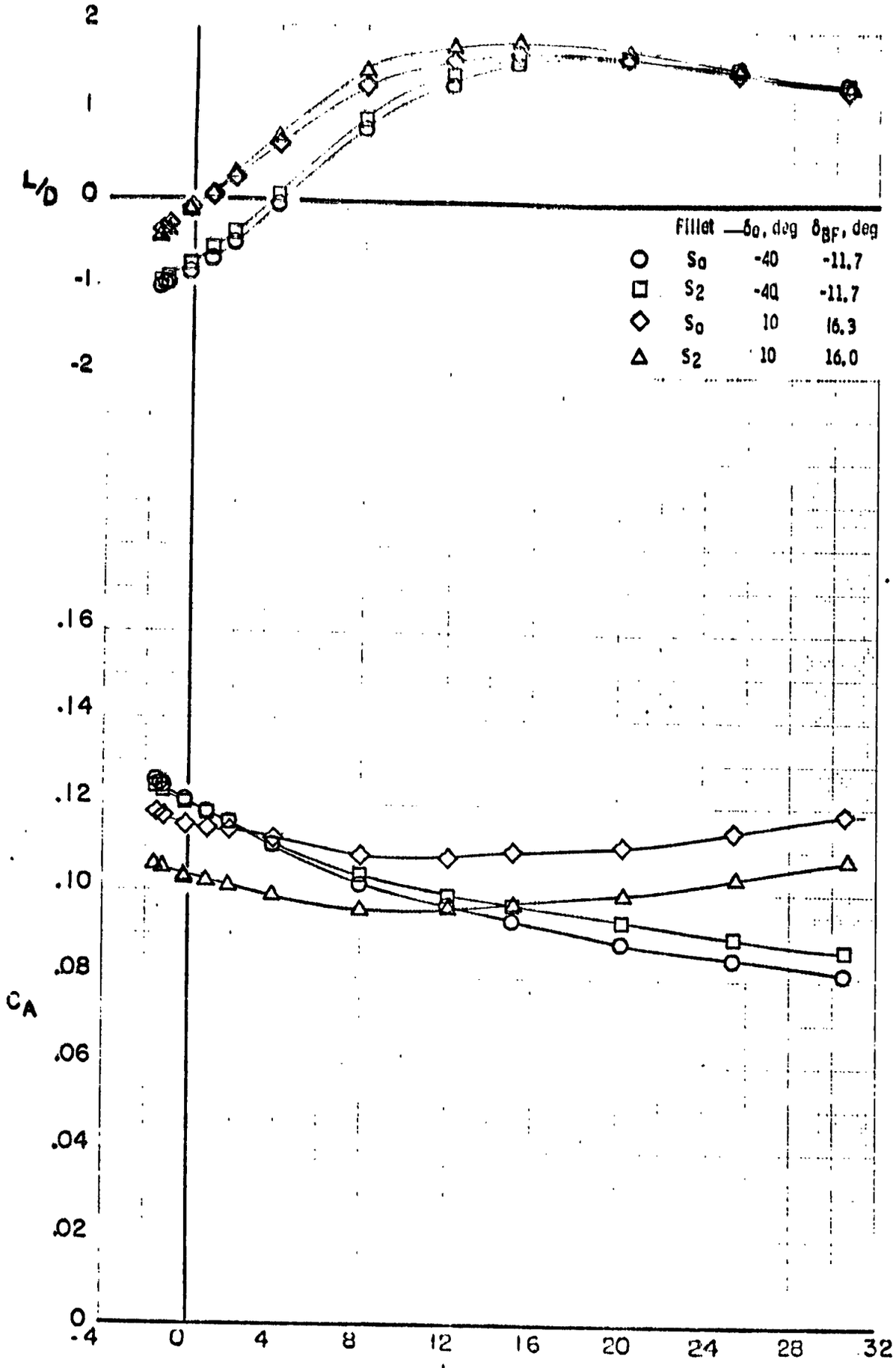
(a) M = 2.5 Concluded.

Figure 4.- Continued.



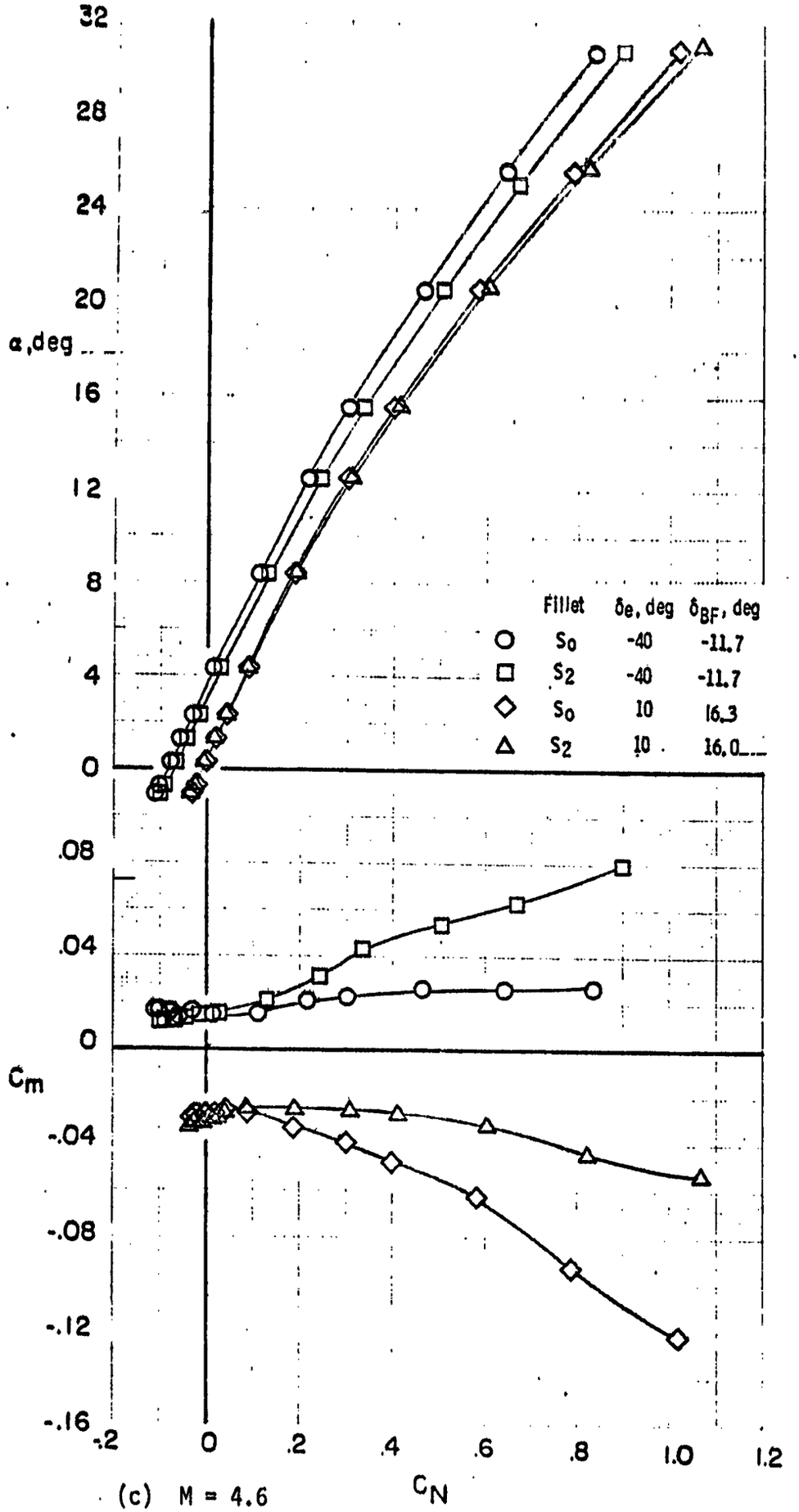
(b) M = 3.95

Figure 4.- Continued.



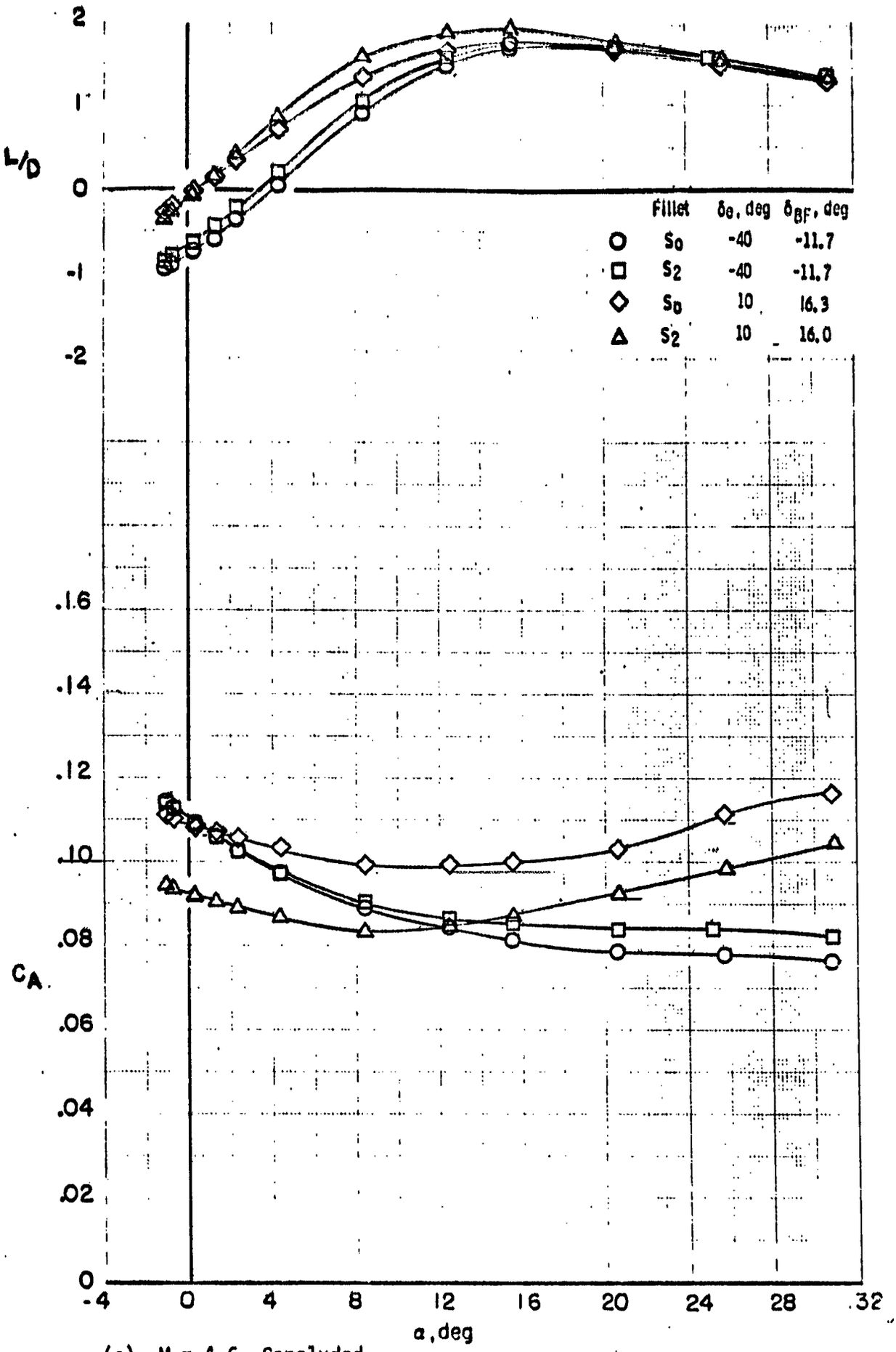
(b) M = 3.95 Concluded.

Figure 4.- Continued.



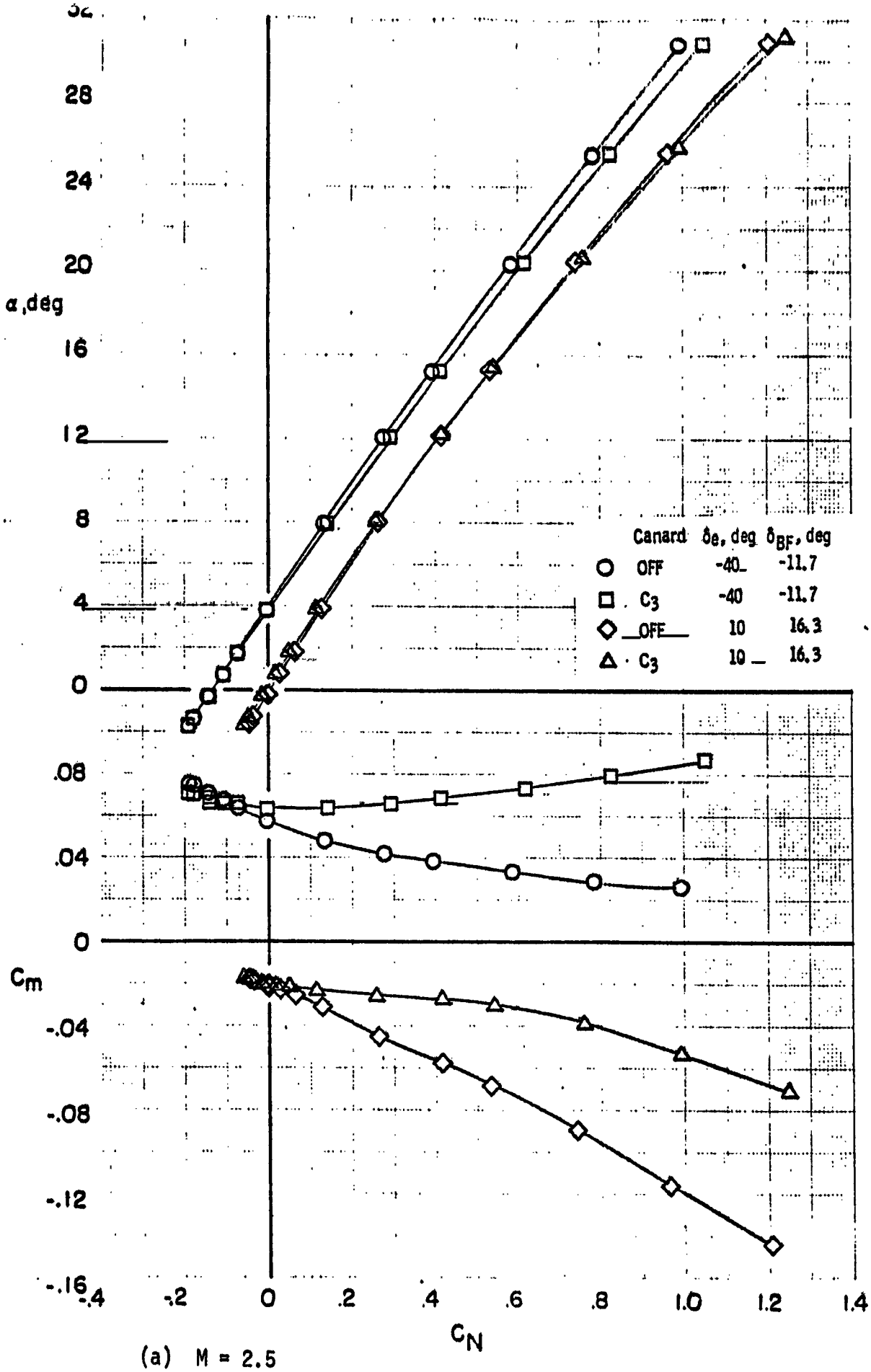
(c) M = 4.6

Figure 4.- Continued.



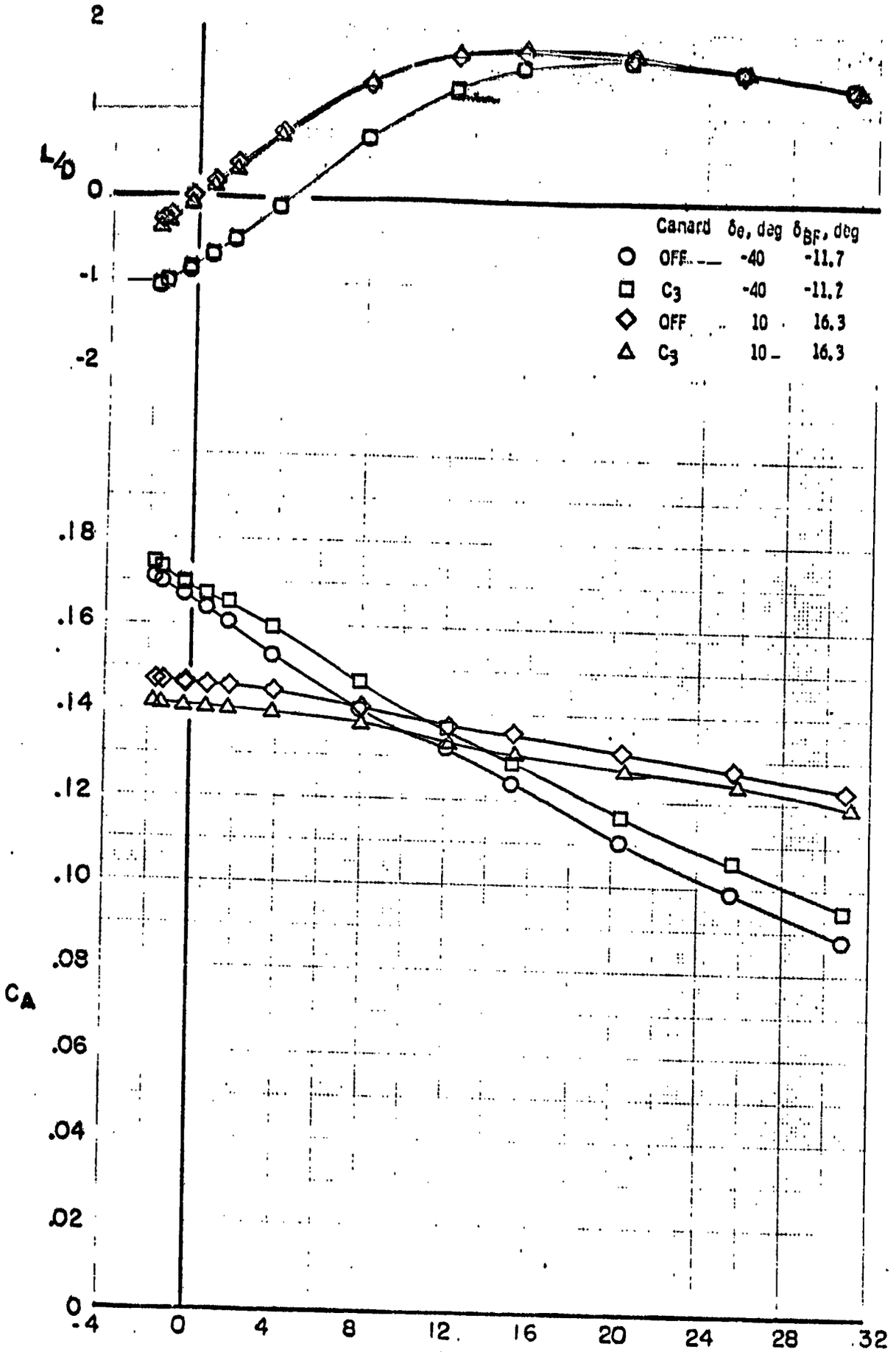
(c) M = 4.6 Concluded.

Figure 4.- Concluded.



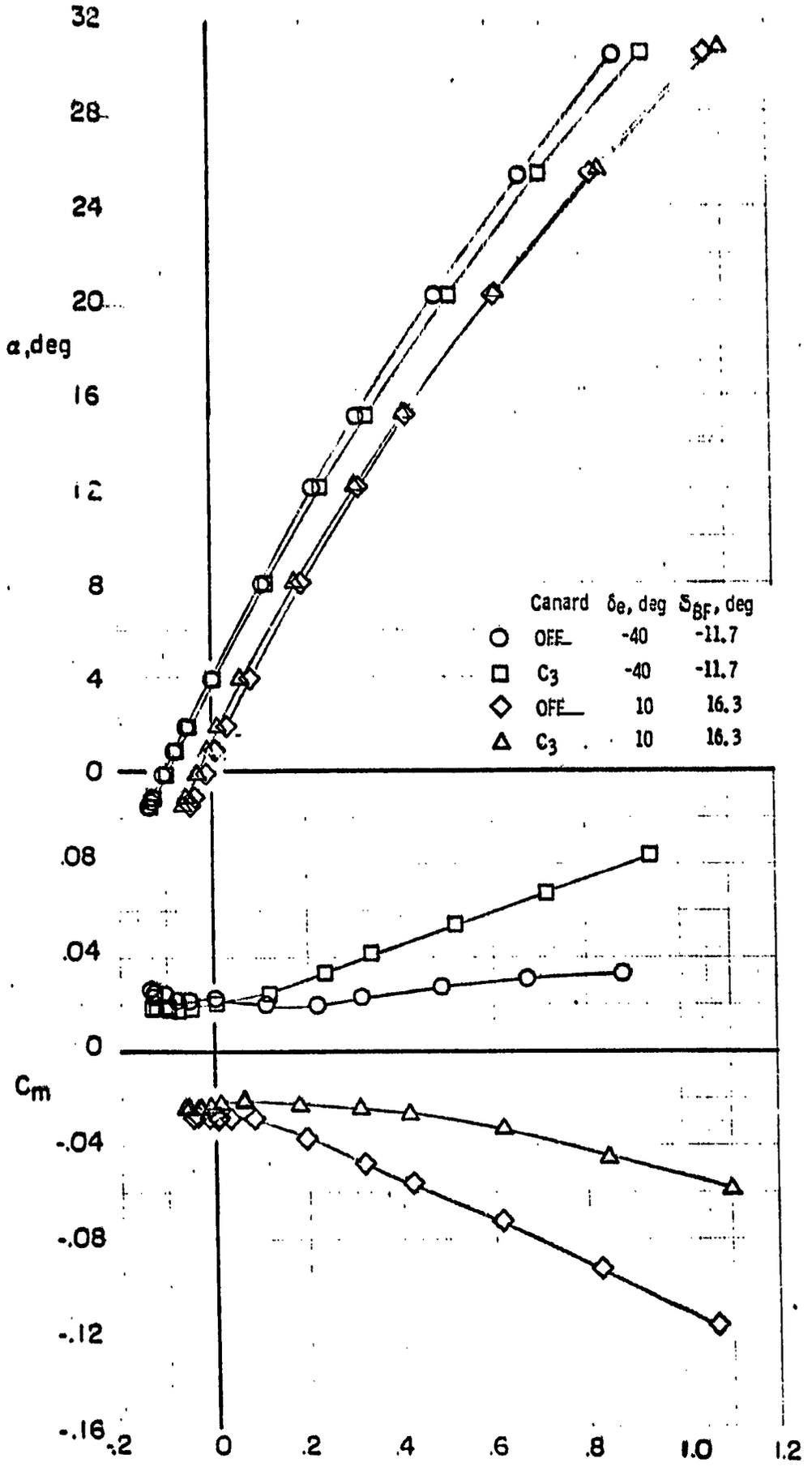
(a) M = 2.5

Figure 5.- Effect of canard C_3 on the longitudinal aerodynamic characteristics for configuration B_1WVS_0EF. $\delta_{SB} = 55^0$.



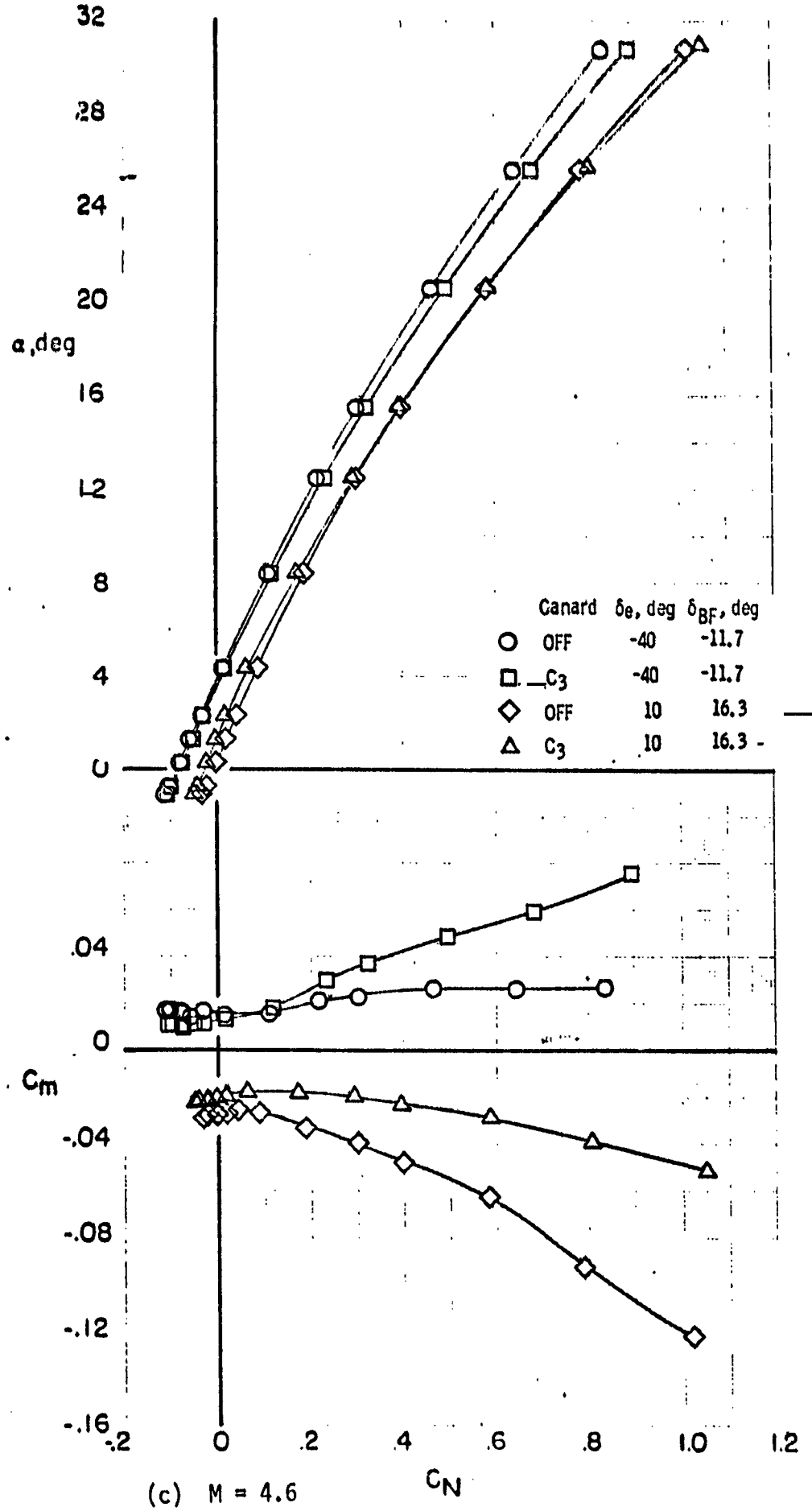
(a) M = 2.5 Concluded.

Figure 5.- Continued.



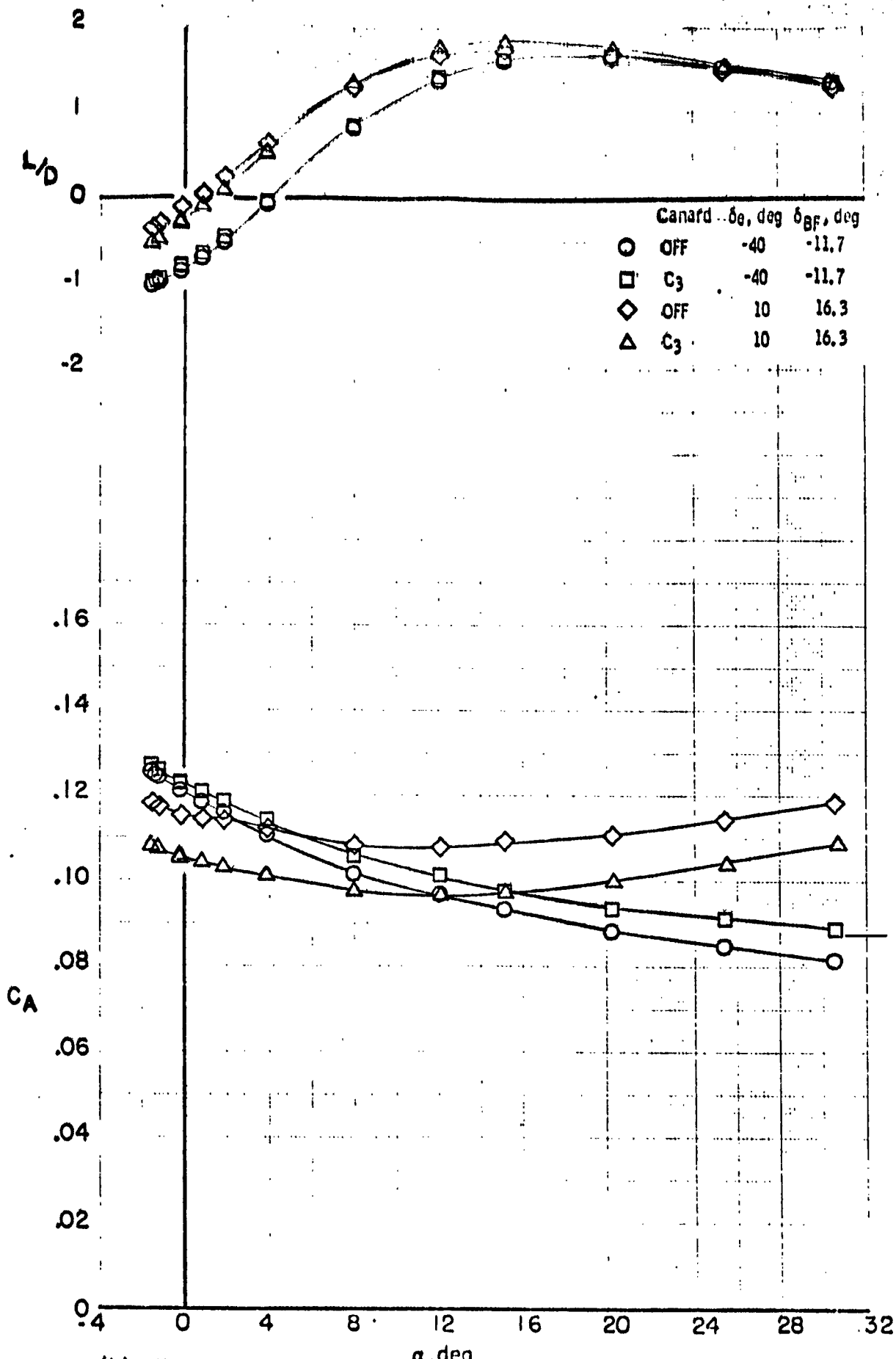
(b) M = 3.95

Figure 5.- Continued.



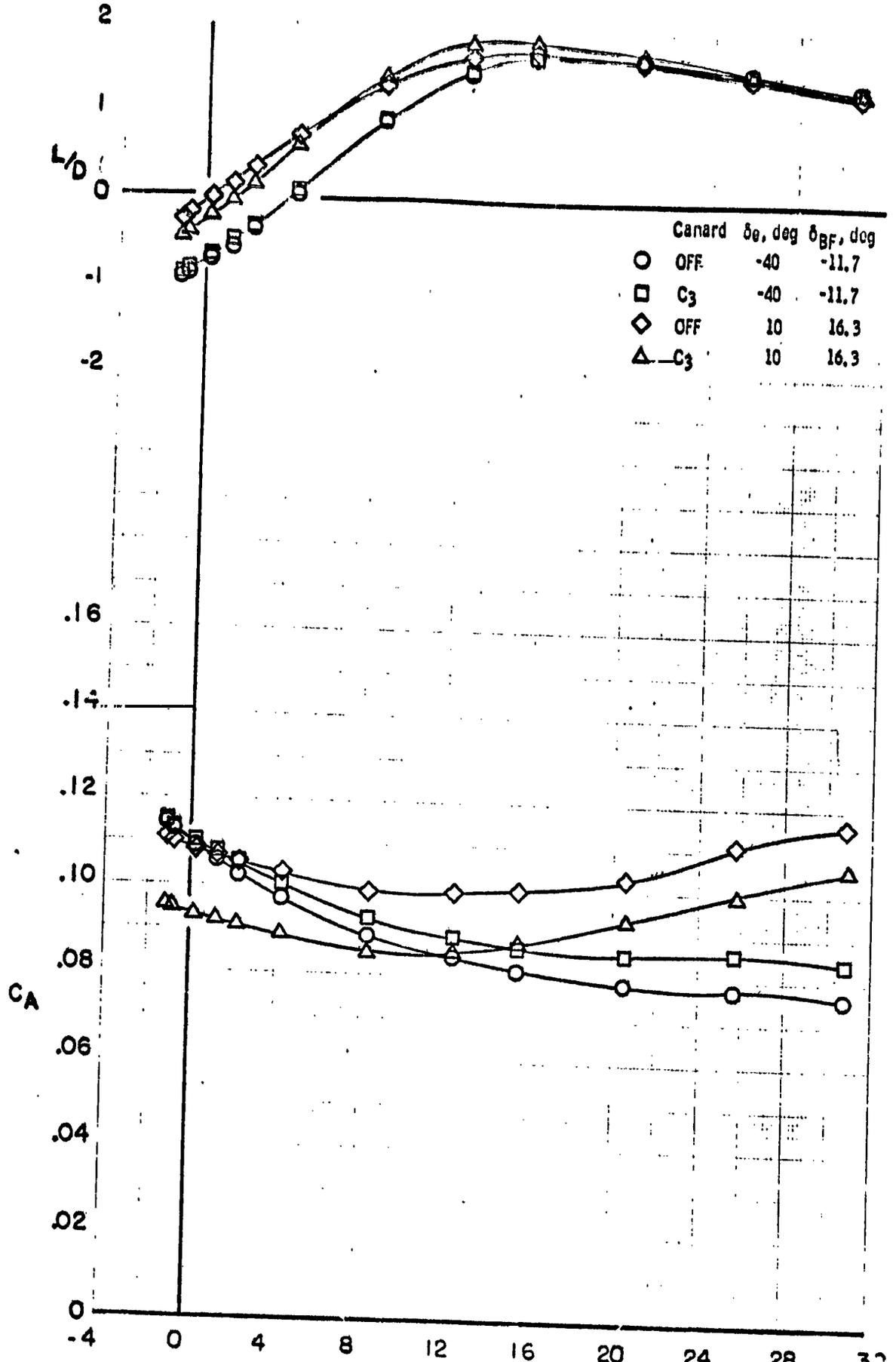
(c) M = 4.6

Figure 5.- Continued.



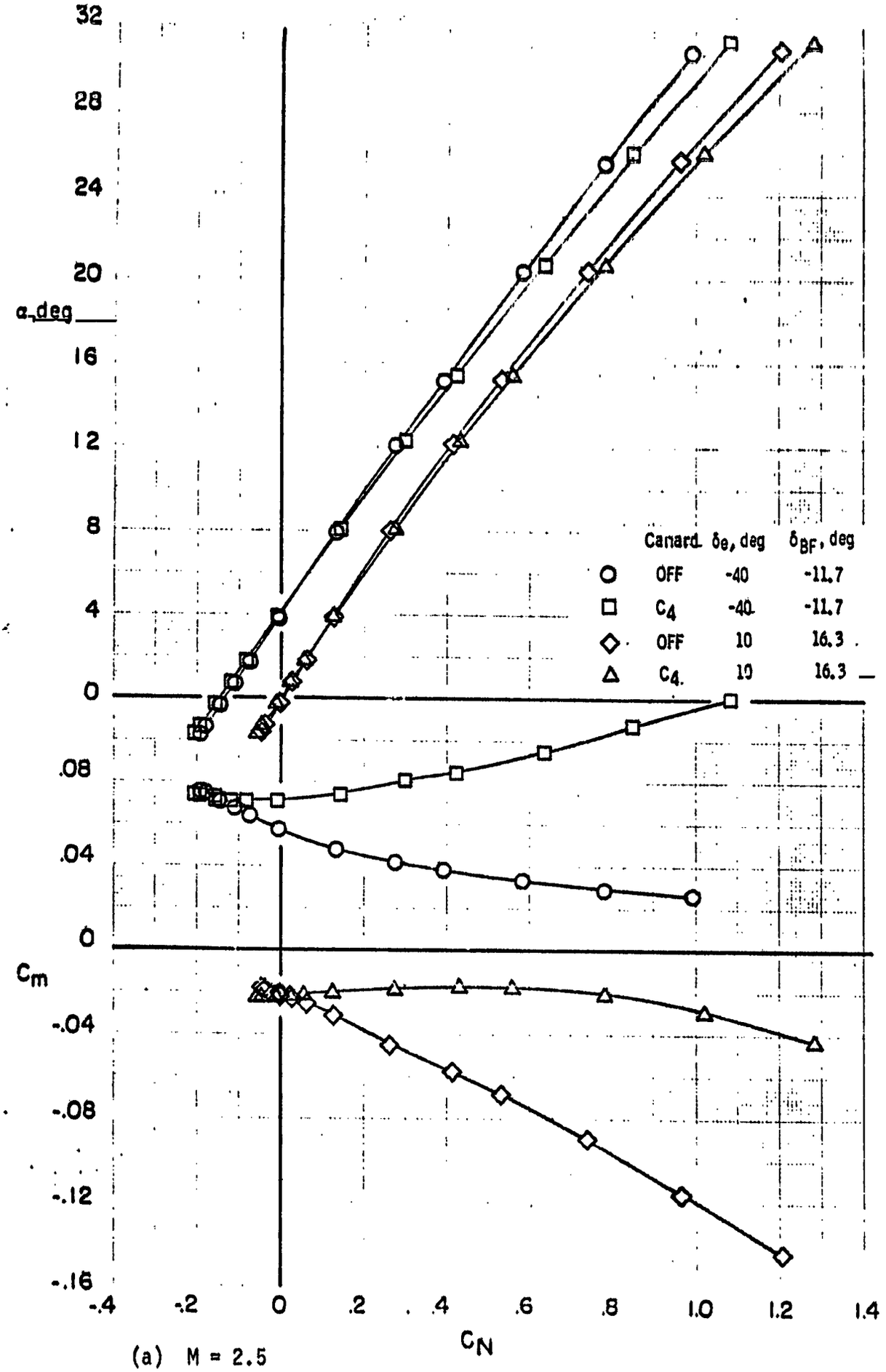
(b) M = 3.95 Concluded.

Figure 5.- Continued.



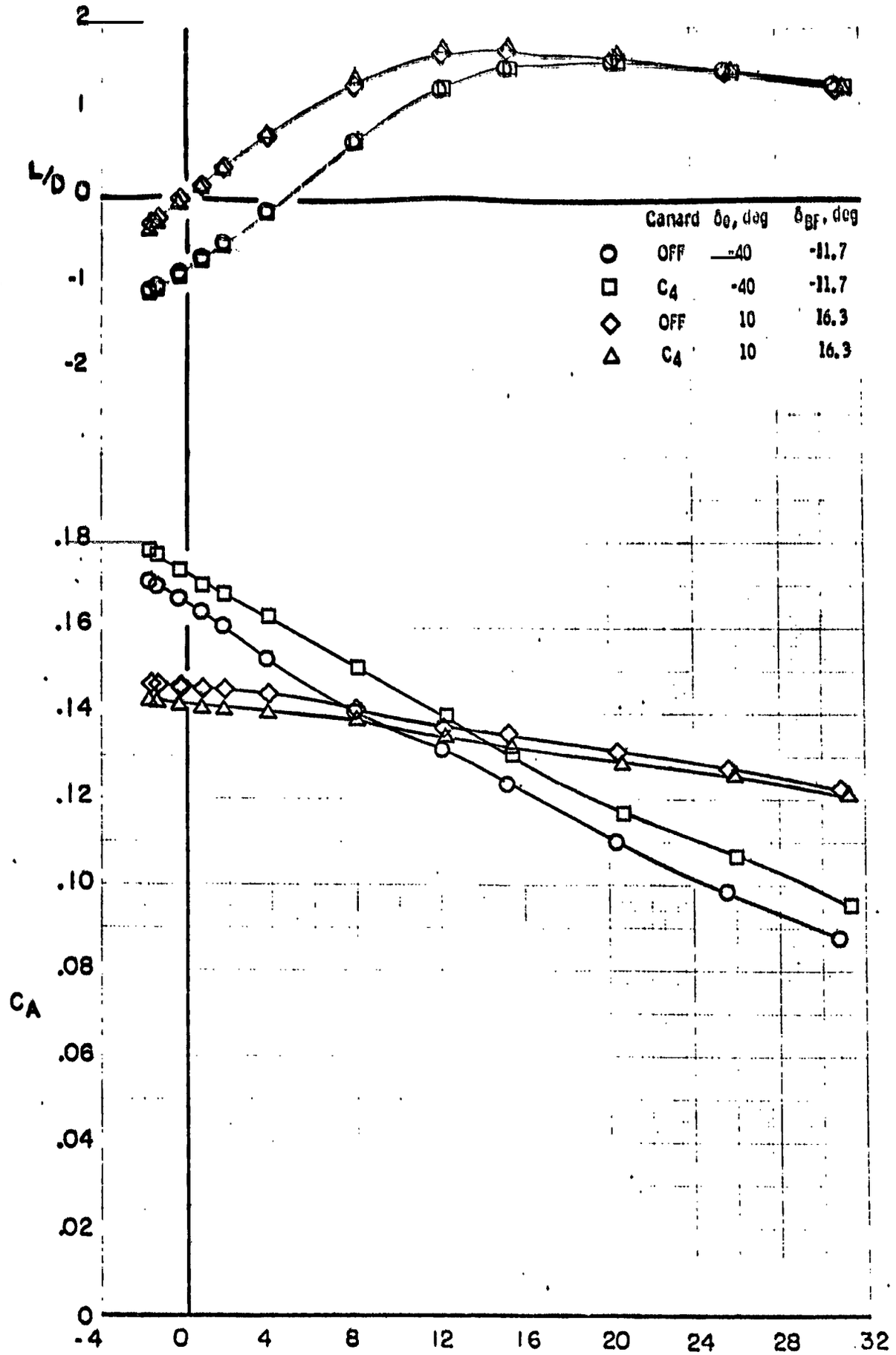
(c) M = 4.6 Concluded.

Figure 5.- Concluded.



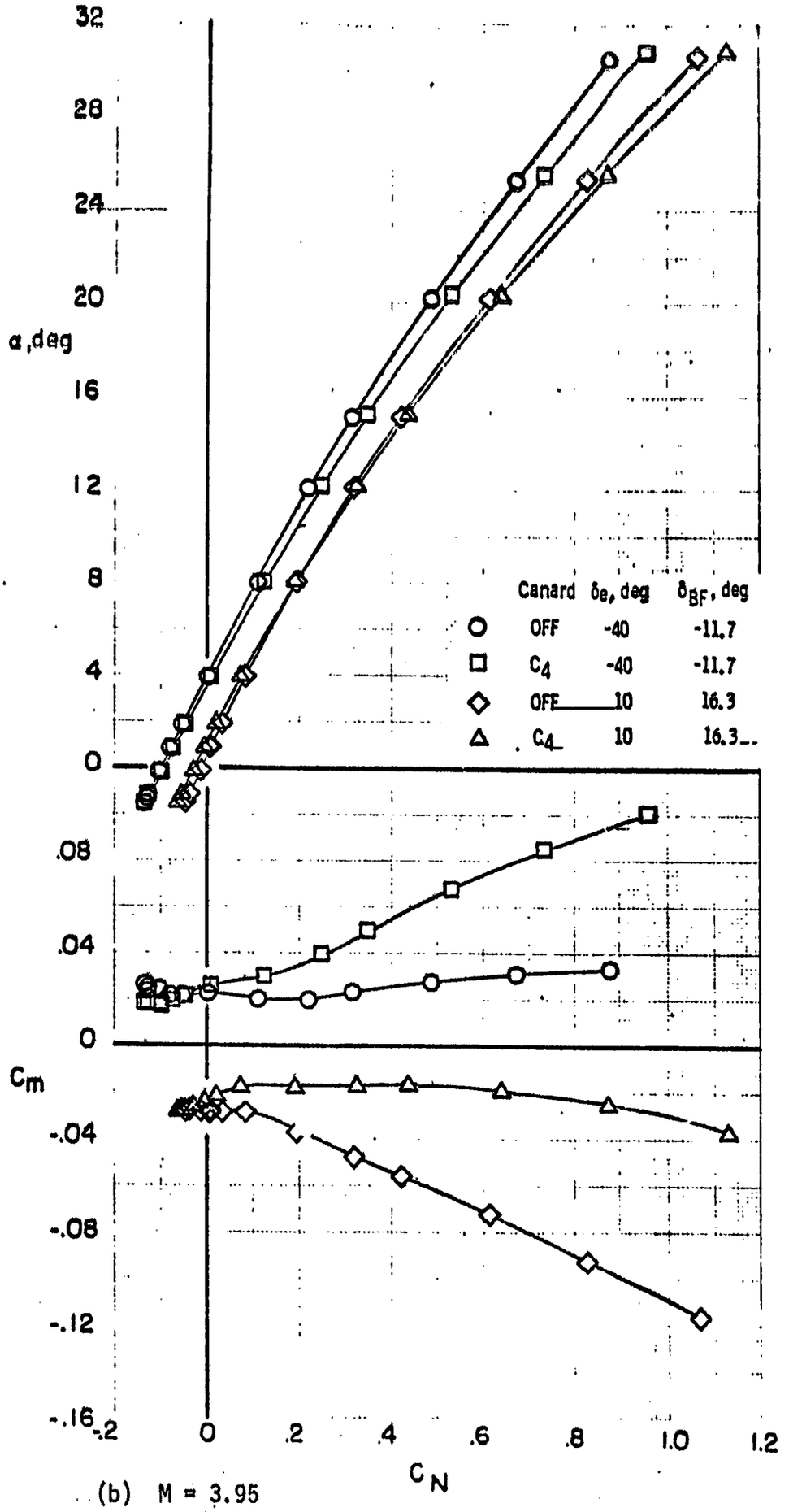
(a) M = 2.5

Figure 6.- Effect of canard C_4 on the longitudinal aerodynamic characteristics for configuration B_1WVS_0EF. $\delta_{SB} = 55^{\circ}$.



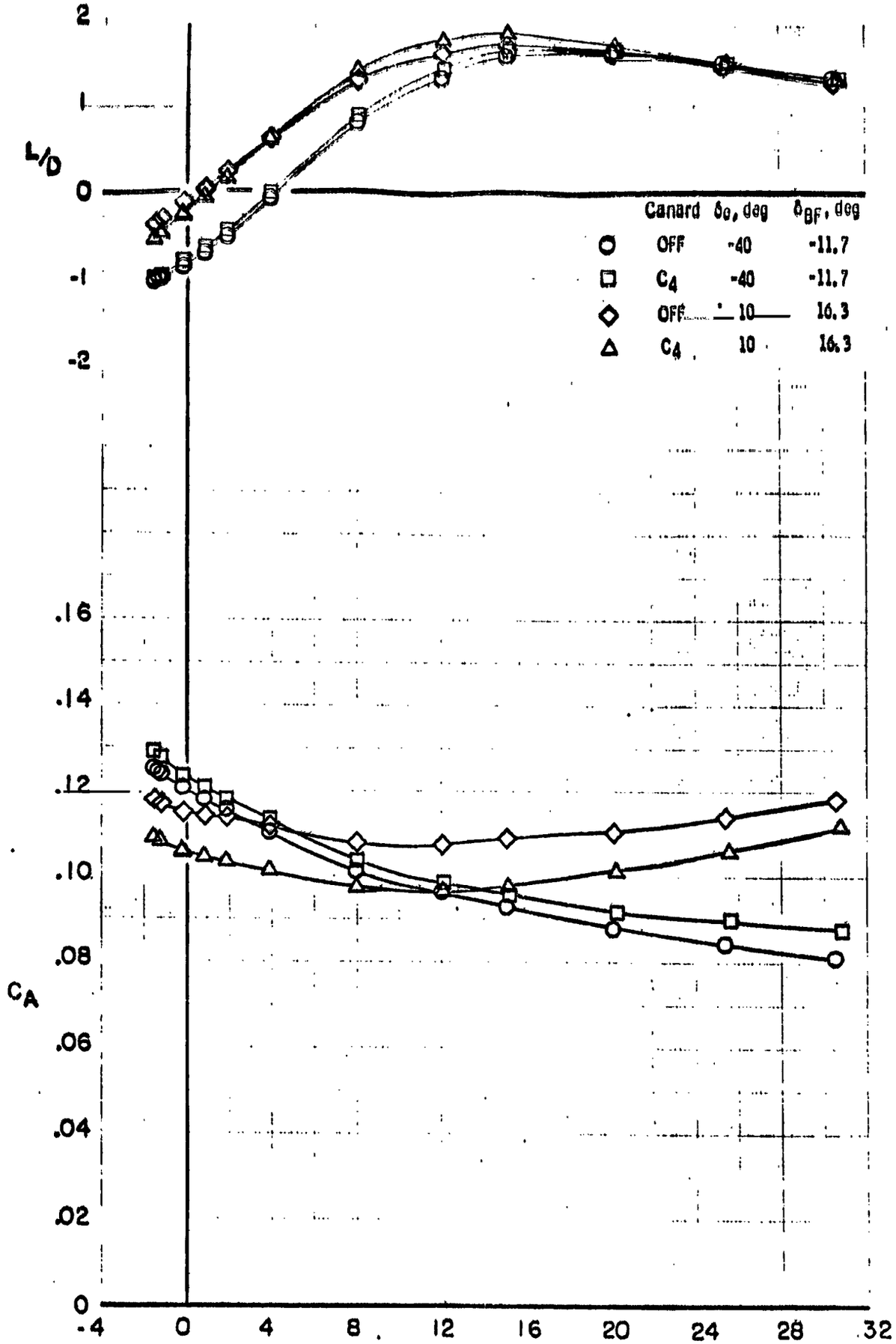
(a) M = 2.5 Concluded.

Figure 6.- Continued.



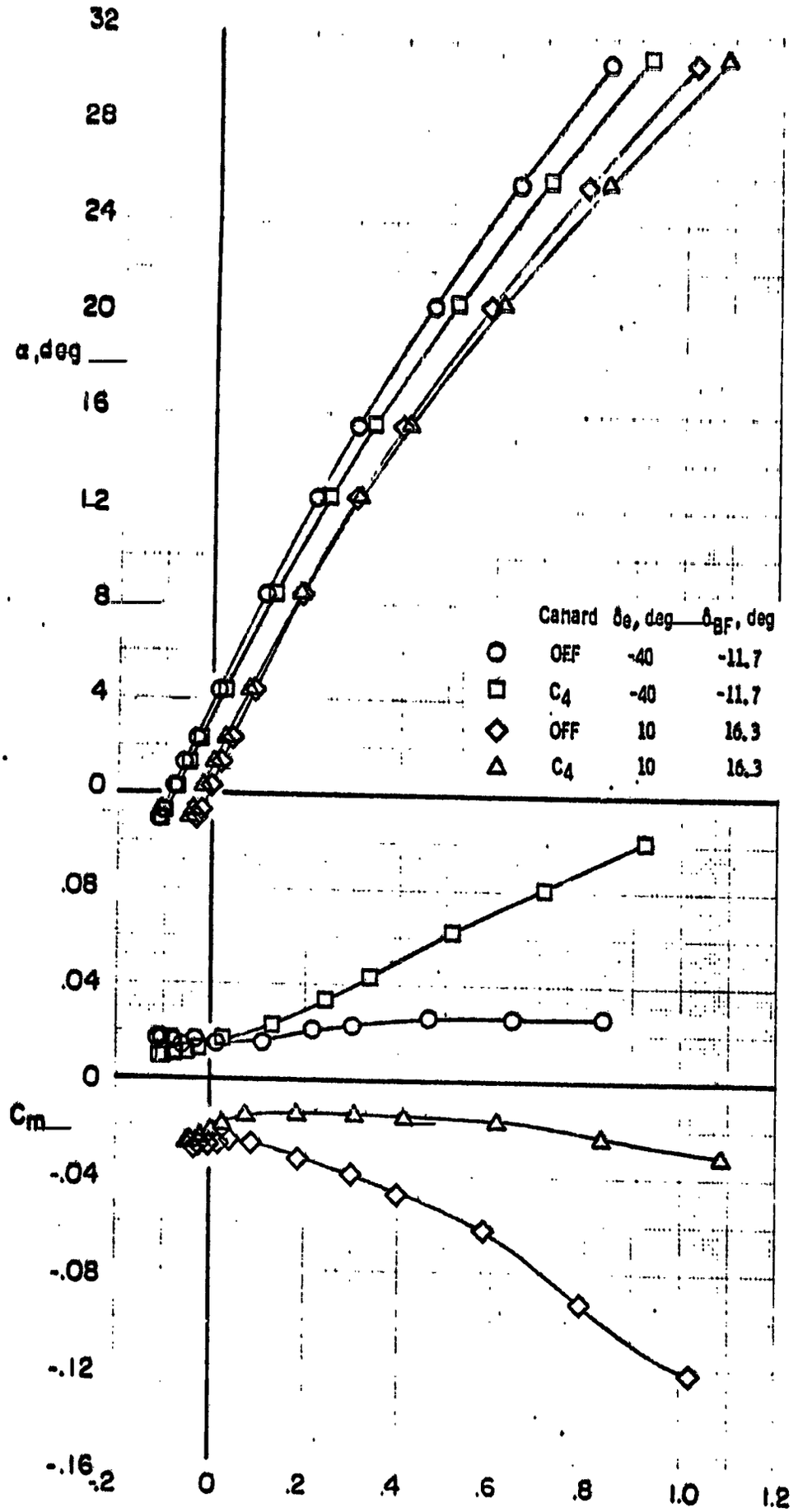
(b) M = 3.95

Figure 6.- Continued.



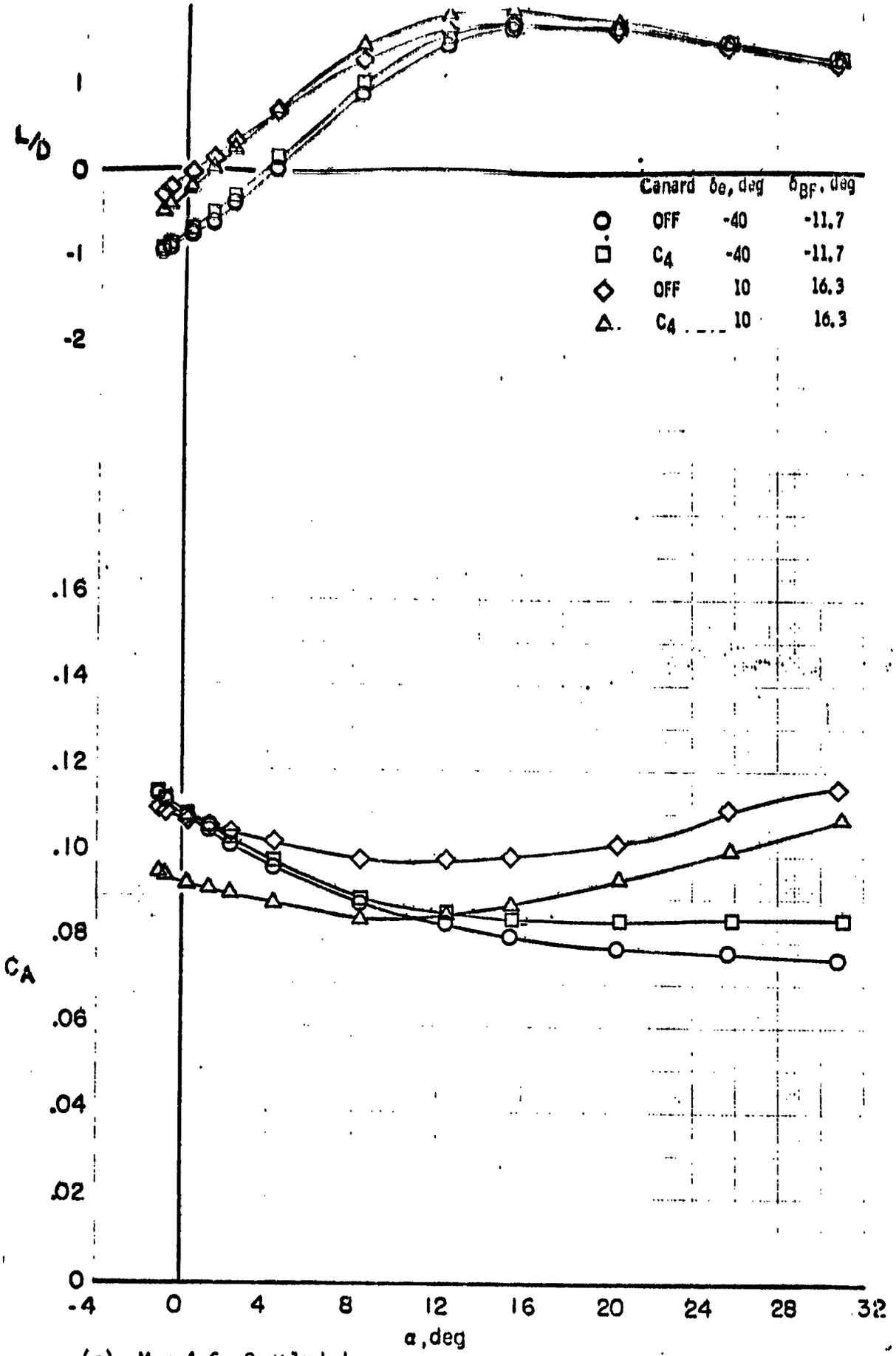
(b) M = 3.95 Concluded.

Figure 6.- Continued.



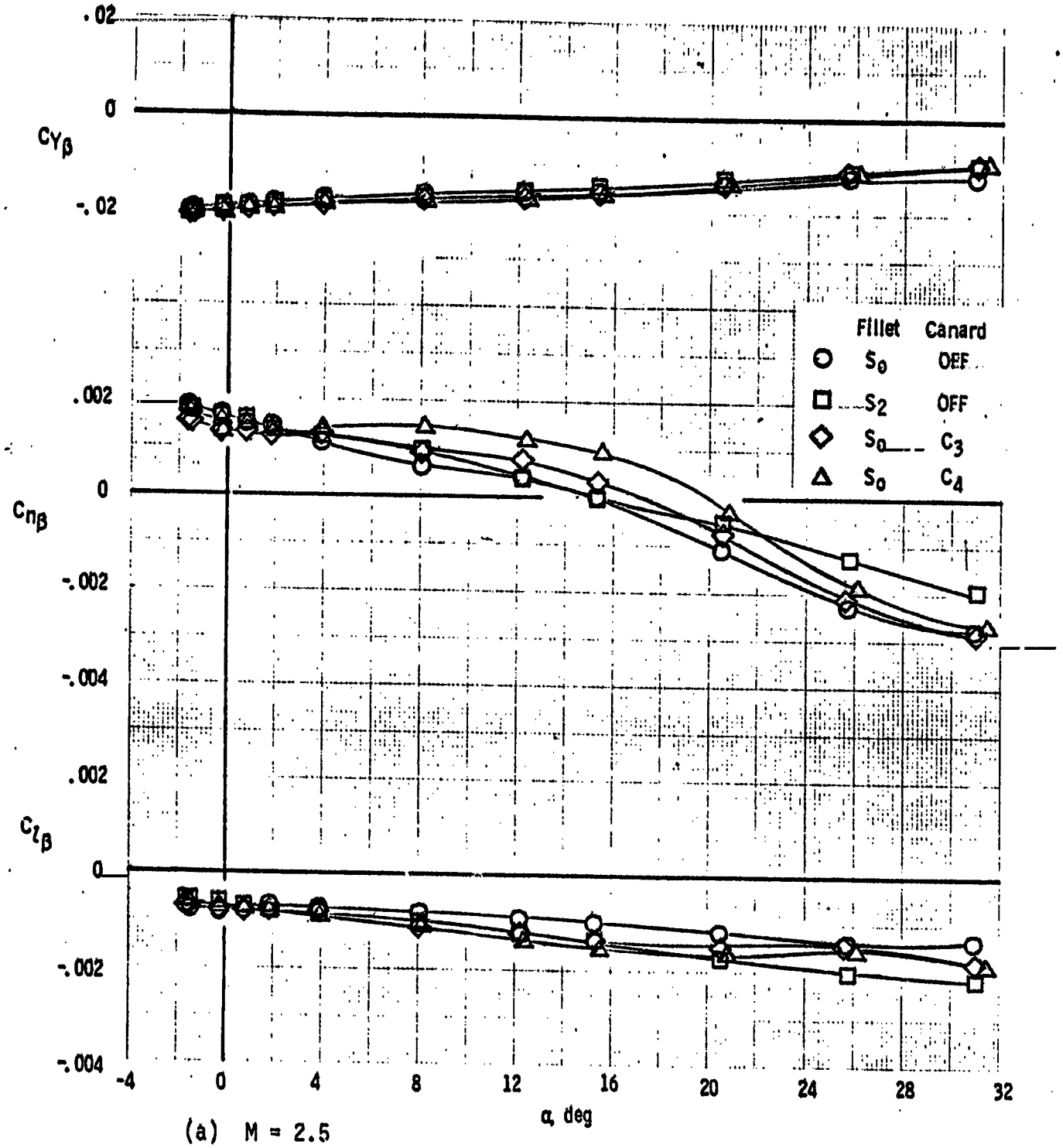
(c) M = 4.6

Figure 6.- Continued.



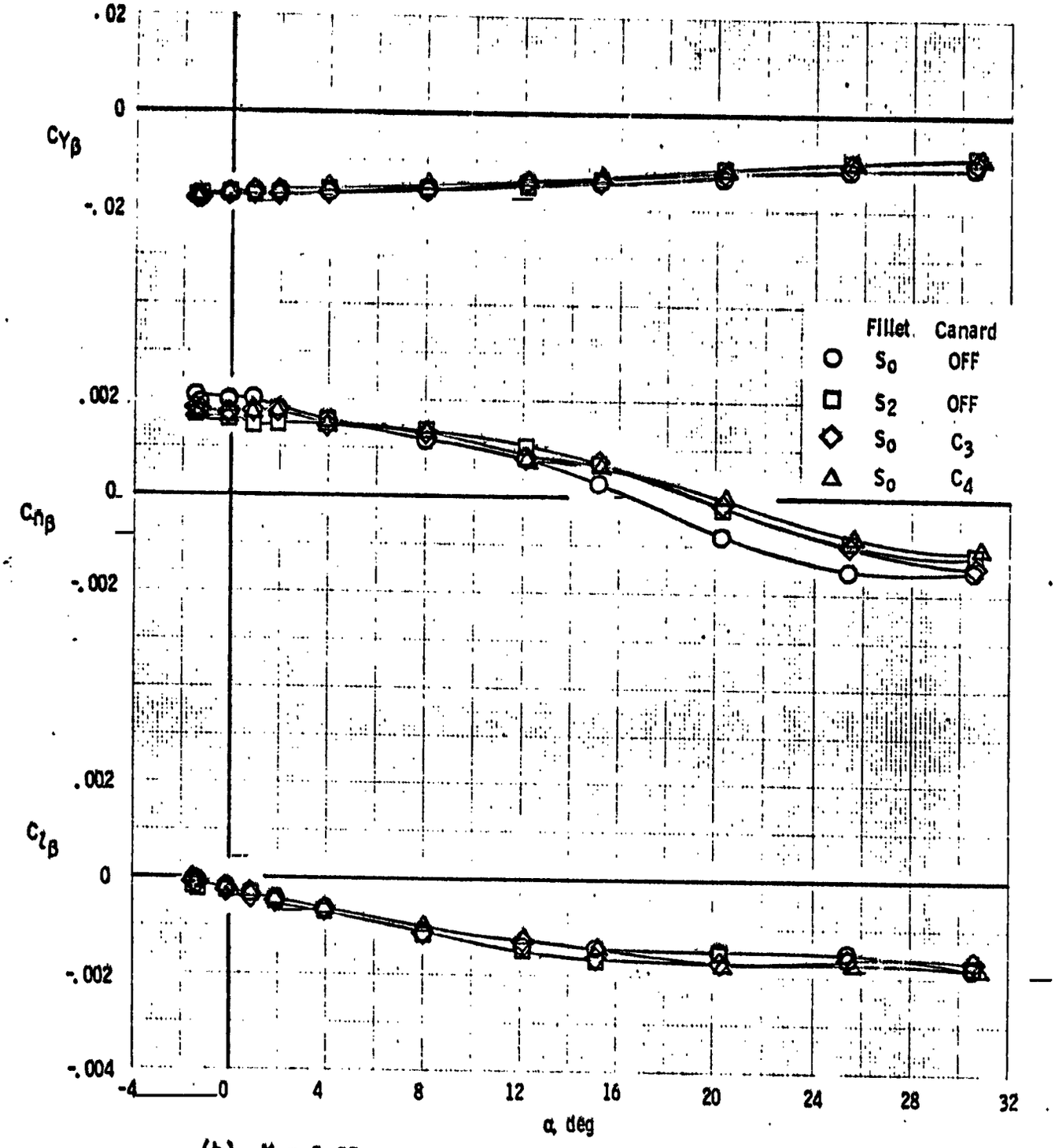
(c) M = 4.6 Concluded.

Figure 6.- Concluded.



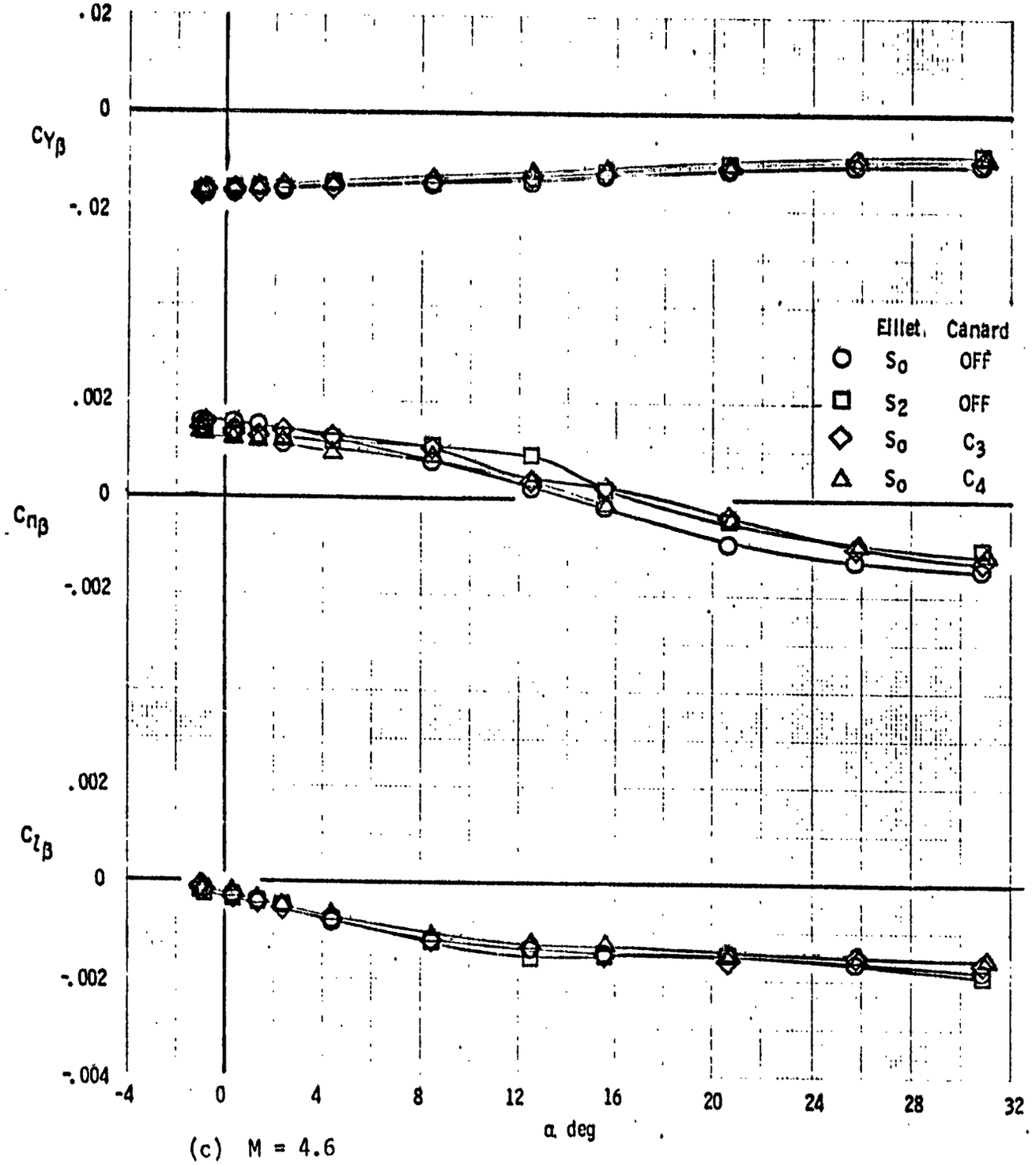
(a) M = 2.5

Figure 7.- Effect of fillet and canard modifications on the lateral-directional characteristics of configuration B_1WVS_0EF. $\delta_e = -40^o$, $\delta_{BF} = -11.7^o$, and $\delta_{SB} = 55^o$.



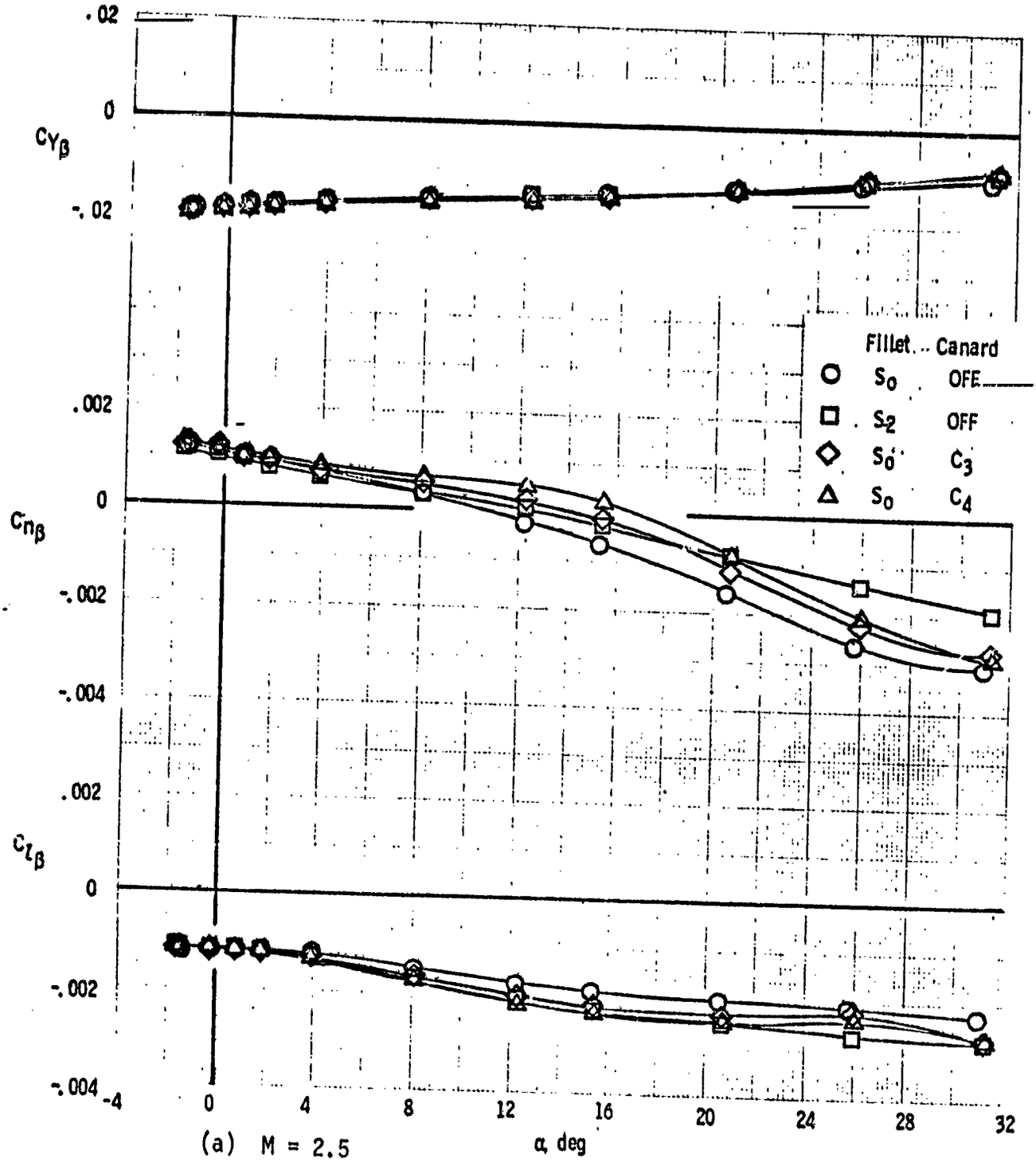
(b) M = 3.95

Figure 7.- Continued.



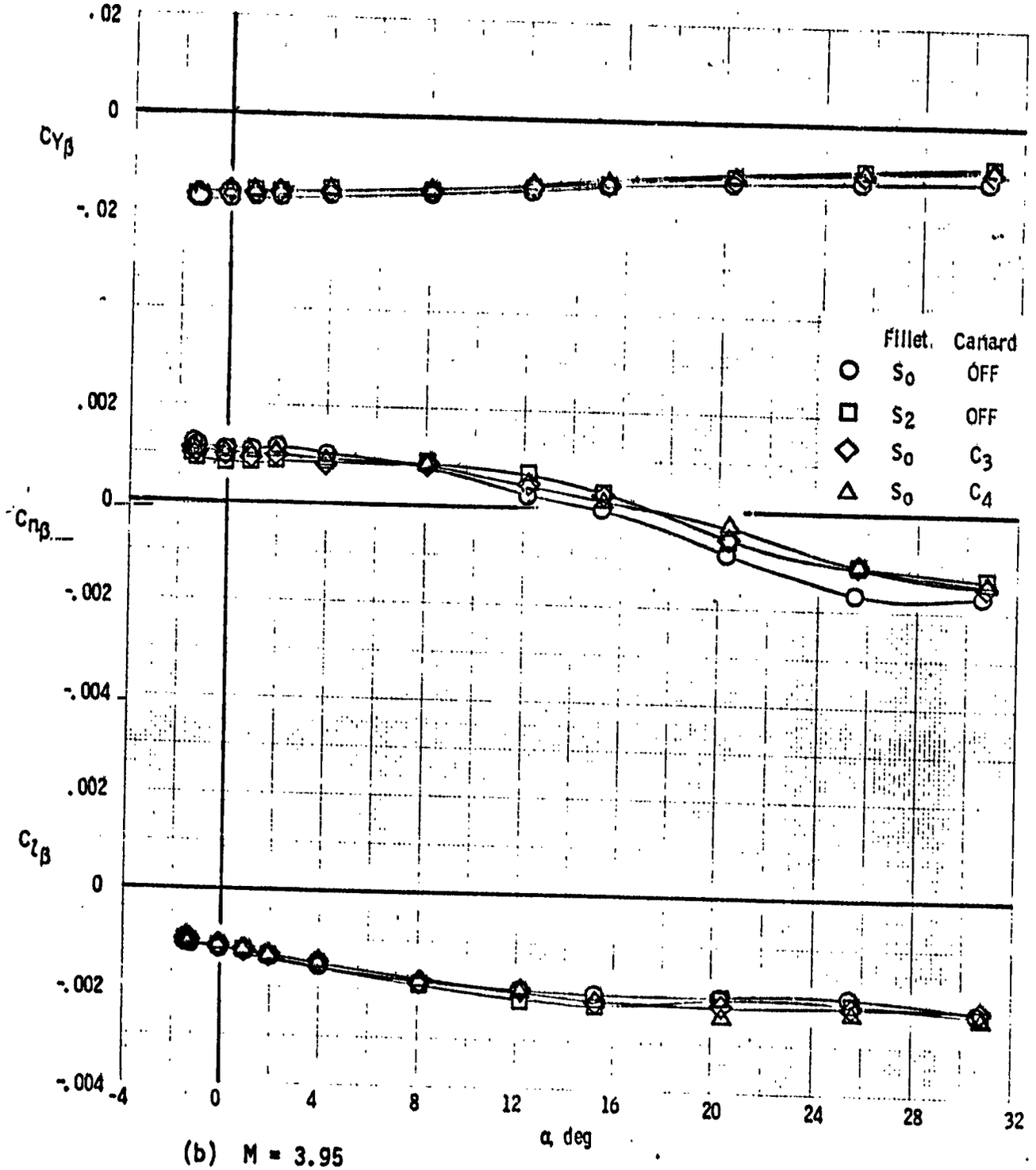
(c) M = 4.6

Figure 7.- Concluded.



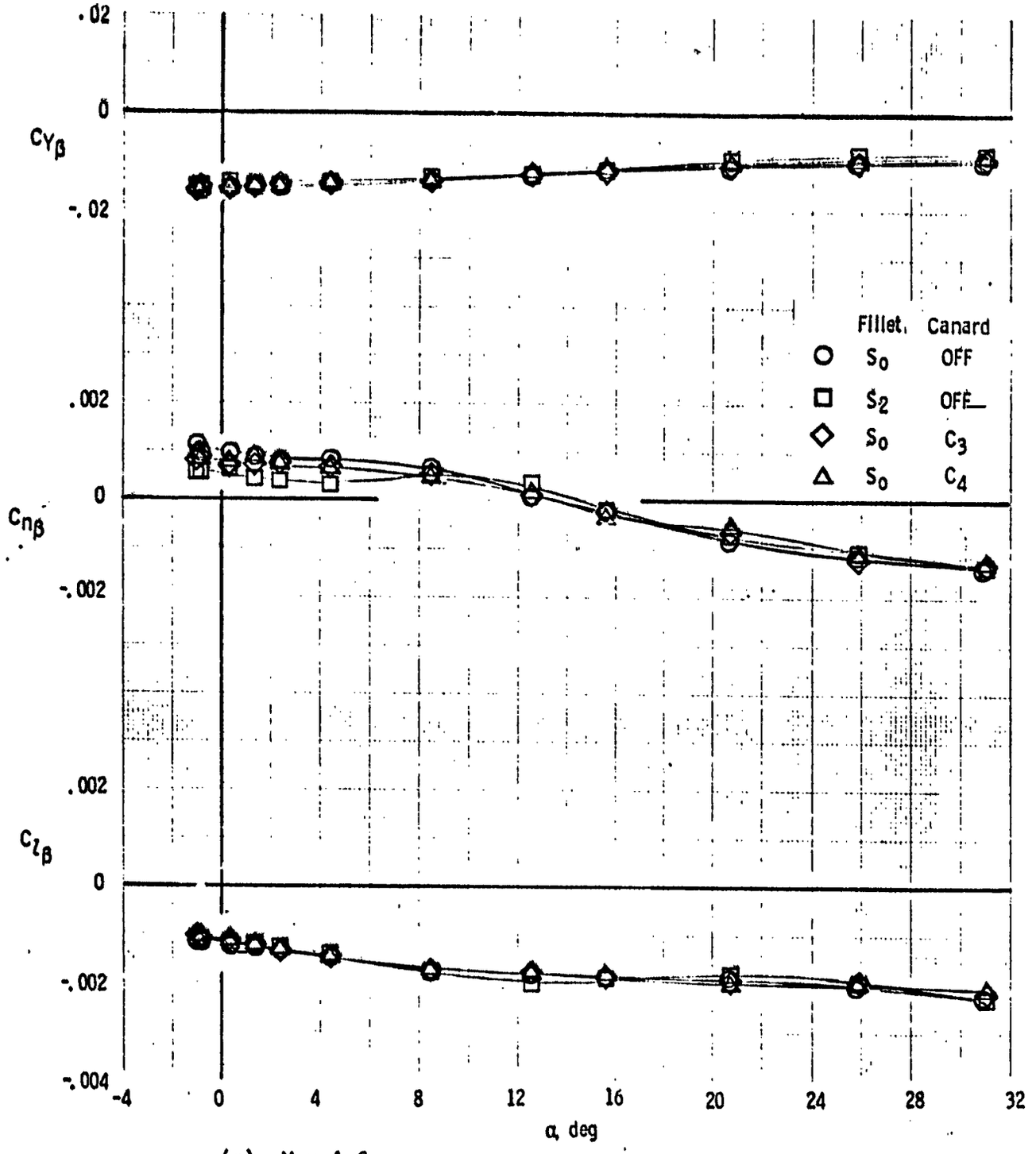
(a) M = 2.5

Figure 8.- Effect of fillet and canard modifications on the lateral-directional characteristics for configuration B_1WVS_0EF. $\delta_e = +10^o$, $\delta_{BF} = +16.3^o$, and $\delta_{SB} = 55^o$.



(b) M = 3.95

Figure 8.- Continued.



(c) M = 4.6

Figure 8.- Concluded.

APPENDIX

Tabulated Data

The data presented herein are identified in table II (Data Set/Run Number Collation Summary) by configuration and run number. These data are also stored on tape in the Space Shuttle Data System (DATAMAN) and are identified by shuttle test number LA-46B and data set identifier letters HG. Access to the data may be obtained by writing to the following address:

Chrysler Corporation, Space Division
Dept. 2910, P. O. Box 29200
New Orleans, LA 70189

TABLE II

TEST: UPWT-1117 (LA-46B)

DATA SET/RUN NUMBER COLLATION SUMMARY

DATE: 15 JANUARY 1975

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES δE	δBF	δSB	NO. OF RUNS	MACH NUMBERS 2.5	3.95	4.6
RHG021	B1WV S0 E1F1	A	0°	10°	16.3°	55°	3	22	24	26
22			5°	10°	16.3°			23	25	27
23			0°	-40°	-11.7°			16	18	20
24			5°	-40°	-11.7°			17	19	21
25	S2		0°	10	16.3°			28	30	32
26			5°	10°	16.3°			29	31	33
27			0°	-40°	-11.7°			10	12	14
28			5°	-40°	-11.7°			11	13	15
29	S0C3		0°	10°	16.3°			34	36	38
30			5°	10°	16.3°			35	37	39
31			0°	-40°	11.7°			2	4	8
32			5°	-40°	11.7°			3	5	9
33	C4		0°	10°	16.3°			40	42	44
34			5°	10°	16.3°			41	43	45
35			0°	-40°	11.7°			46	48	50
36			5°	-40°	11.7°			47	49	51

TEST RUN NUMBERS

7 13 19 25 31 37 43 49 55 61 67 75 76

, CN, , , CA, , , CLM, , , CY, , , CYN, , , CBL, , , CL, , , CD, , , L/D, , BETA, , MACH, , , ALPHA, , , I.D

α OR β SCHEDULES

α(A) = -2, -1, 2, 4, 8, 16, 20, 26, 31

COEFFICIENTS

IDUAR (1) IDUAR (2) NDV

UPNT-1117(LA-46B)ORBITER (B1WVS0E1F1) (OH5021)

PARAMETRIC DATA

BETA = .000 ELEVTR = 10.000
BDFLAP = 16.300 SPDBRK = 65.000

RUN NO. 22/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
2.500	-1.608	-.04464	.14722	-.01758	-.00330	.00062	-.00035	-.04051	.14841	-.27298	.00125
2.500	-1.256	-.03584	.14701	-.01827	-.00217	.00056	-.00037	-.03261	.14776	-.22068	.00072
2.500	-.223	-.00075	.14633	-.02021	-.00117	.00068	-.00045	-.00018	.14634	-.00120	.00018
2.500	.797	.02823	.14613	-.02237	-.00126	.00067	-.00040	.02619	.14650	.17879	.00073
2.500	1.842	.06384	.14597	-.02505	.00105	.00078	-.00052	.05912	.14795	.39959	-.00085
2.500	3.912	.12832	.14503	-.03059	.00156	.00075	-.00052	.11813	.15345	.76984	-.00085
2.500	8.035	.26335	.14142	-.04468	-.00017	.00061	-.00041	.24099	.17685	1.36275	-.00072
2.500	12.191	.41458	.13718	-.05723	-.00153	.00114	-.00042	.37626	.22163	1.69768	-.00128
2.500	15.293	.53288	.13576	-.06893	-.00169	.00124	-.00039	.47829	.27151	1.76125	.00022
2.500	20.509	.74236	.13163	-.08895	-.00118	.00142	-.00020	.64918	.38338	1.69331	.00006
2.500	25.717	.96571	.12766	-.11544	-.00131	.00159	-.00046	.81466	.53406	1.52542	-.00089
2.500	30.962	1.20815	.12296	-.14318	-.00194	.00221	-.00040	.97274	.72700	1.33802	.00000

RUN NO. 24/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
3.950	-1.469	-.04469	.11817	-.02766	.00535	.00164	-.00025	-.04165	.11928	-.34915	-.00519
3.950	-1.127	-.03637	.11727	-.02695	.00638	.00185	-.00022	-.03405	.11797	-.28869	-.00582
3.950	-.109	-.01192	.11526	-.02757	.00768	.00188	-.00021	-.01170	.11528	-.10151	-.00615
3.950	.902	.00720	.11453	-.02841	.00577	.00129	-.00020	.00540	.11453	.04712	-.00611
3.950	1.922	.03364	.11418	-.02793	.00779	.00164	-.00030	.02979	.11524	.25854	-.00512
3.950	3.951	.08454	.11226	-.02797	.00927	.00197	-.00022	.07661	.11782	.65022	-.00568
3.950	8.032	.19607	.10845	-.03650	.00691	.00177	-.00003	.17900	.13478	1.32806	-.00565
3.950	12.125	.32031	.10799	-.04728	.00467	.00233	-.00012	.29049	.17285	1.68052	-.00605
3.950	15.186	.42265	.10951	-.05566	.00307	.00163	-.00015	.37921	.21649	1.75237	-.00513
3.950	20.318	.61456	.11092	-.07183	.00699	.00244	-.00030	.53781	.31741	1.69433	-.00477
3.950	25.463	.82851	.11445	-.09201	.00617	.00278	-.00013	.69883	.45954	1.52071	-.00619
3.950	30.621	1.06931	.11863	-.11610	.00518	.00287	-.00043	.85977	.64675	1.32956	-.00458

UPWT-1117(LA-46B)ORBITER (B1WVSOE1F1) (R46021)

PARAMETRIC DATA

BETA = .000 ELEVTR = 10.000
BDFLAP = 16.300 SPDBRK = 55.000

RUN NO. 26/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
4.600	-1.017	-.03109	.11131	-.02864	.00664	.00011	.00003	-.02911	.11184	-.26025	-.02295
4.600	-.675	-.02111	.11042	-.02731	.00951	.00076	-.00001	-.01981	.11166	-.17903	-.02453
4.600	.341	-.00076	.10861	-.02759	.00938	.00057	-.00012	-.00141	.10860	-.01295	-.02389
4.600	1.348	.02047	.10721	-.02681	.00999	.00057	-.00013	.01794	.10766	.16663	-.02372
4.600	2.363	.04433	.10576	-.02529	.01304	.00116	-.00025	.03994	.10759	.37159	-.02506
4.600	4.392	.08980	.10357	-.02641	.01138	.00073	-.00027	.08160	.11514	.74891	-.02345
4.600	8.448	.18873	.09948	-.03284	.00979	.00024	.00007	.17206	.12613	1.36422	-.02388
4.600	12.511	.30174	.09963	-.03900	.00717	.00027	.00013	.27300	.16263	1.67857	-.02407
4.600	15.554	.40027	.10023	-.04746	.00681	.00063	.00002	.35874	.20369	1.75945	-.02267
4.600	20.655	.58486	.10333	-.06193	.01109	.00117	-.00012	.51582	.30299	1.68595	-.02414
4.600	25.765	.79078	.11161	-.09221	.00586	.00018	.00026	.66366	.44425	1.49389	-.02231
4.600	30.886	1.02115	.11648	-.12135	.00750	.00094	.00017	.81654	.62415	1.30824	-.02256

UPWT-1117(LA-46B)ORBITER (B1WVSOE1F1) (R46022)

PARAMETRIC DATA

BETA = 5.000 ELEVTR = 10.000
BDFLAP = 16.300 SPDBRK = 55.000

RUN NO. 23/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
2.500	-1.608	-.04323	.14724	-.02459	-.09880	.00708	-.00620	-.03908	.14839	-.25334	5.10275
2.500	-1.250	-.03158	.14715	-.02578	-.09907	.00690	-.00638	-.02856	.14780	-.19189	5.10330
2.500	-.219	.00082	.14630	-.02732	-.09517	.00652	-.00635	.00138	.14629	.00943	5.10372
2.500	.805	.03276	.14558	-.02884	-.09124	.00692	-.00629	.03072	.14593	.21035	5.09828
2.500	1.828	.06640	.14510	-.03085	-.08773	.00565	-.00634	.06173	.14714	.41957	5.09600
2.500	3.898	.13255	.14416	-.03623	-.08310	.00423	-.00646	.12244	.15284	.80113	5.09595
2.500	8.032	.26998	.14172	-.04842	-.08003	.00235	-.00784	.24753	.17805	1.39024	5.09161
2.500	12.194	.41951	.13828	-.06126	-.07652	-.00010	-.00921	.38084	.22378	1.70187	5.08992
2.500	15.297	.53866	.13482	-.07249	-.07319	-.00205	-.00981	.48450	.27215	1.77841	5.09044
2.500	20.512	.74800	.12926	-.09488	-.06545	-.00661	-.01029	.65528	.38317	1.71016	5.08890
2.500	25.723	.96526	.12702	-.11660	-.05895	-.01172	-.01106	.81447	.53337	1.52702	5.08761
2.500	30.970	1.20873	.12583	-.14434	-.05463	-.01329	-.01180	.97166	.72969	1.33124	5.08638

UPWT-1117(LA-46B)ORBITER (B1WVS0E1F1) (0H5922)

PARAMETRIC DATA

BETA = 5.000 ELEVTR = 10.000
BDFLAP = 16.300 SPBRK = 55.000

RUN NO. 25/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
3.950	-1.472	-.04226	.11941	-.02932	-.08315	.00785	-.00571	-.03918	.12046	-.32525	5.00730
3.950	-1.131	-.03583	.11932	-.02958	-.08329	.00759	-.00577	-.03346	.12000	-.27887	5.00774
3.950	-.114	-.01250	.11785	-.02947	-.08061	.00759	-.00611	-.01226	.11788	-.10405	5.00557
3.950	.911	.01071	.11630	-.03040	-.07911	.00729	-.00654	.00886	.11646	.07607	5.00534
3.950	1.925	.03643	.11468	-.03097	-.07748	.00748	-.00705	.03256	.11576	.28125	5.00570
3.950	3.950	.08941	.11226	-.03176	-.07357	.00714	-.00789	.08146	.11816	.68944	5.00412
3.950	8.032	.19859	.10899	-.04089	-.07311	.00606	-.00929	.18141	.13557	1.33714	5.00311
3.950	12.122	.32094	.10883	-.05006	-.06997	.00360	-.00985	.29093	.17360	1.67598	5.00159
3.950	15.182	.42493	.10912	-.05754	-.06371	.00165	-.00991	.38152	.21659	1.76145	5.00065
3.950	20.318	.61664	.11112	-.07422	-.05648	-.00197	-.00987	.53988	.31833	1.69537	5.00066
3.950	25.464	.82893	.11537	-.09486	-.05304	-.00559	-.00988	.69881	.46056	1.51731	5.00005
3.950	30.619	1.06701	.11985	-.11813	-.05137	-.00557	-.01103	.85720	.64560	1.32771	5.00899

RUN NO. 27/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
4.600	-1.010	-.02878	.11291	-.02640	-.07223	.00582	-.00564	-.02678	.11340	-.23617	5.00492
4.600	-.669	-.02489	.11239	-.02800	-.07486	.00491	-.00567	-.02357	.11267	-.20922	5.00588
4.600	.340	-.00170	.11030	-.02653	-.07015	.00547	-.00612	-.00235	.11028	-.02132	5.00473
4.600	1.344	.01965	.10828	-.02719	-.06779	.00504	-.00640	.01711	.10971	.15737	5.00431
4.600	2.361	.04430	.10634	-.02658	-.06459	.00523	-.00678	.03988	.10907	.38905	5.00311
4.600	4.387	.09163	.10345	-.02949	-.06262	.00497	-.00756	.08345	.11015	.75756	5.00290
4.600	8.437	.18904	.10143	-.03574	-.06112	.00360	-.00869	.17212	.12207	1.34395	5.00145
4.600	12.509	.30108	.10174	-.04425	-.05787	.00079	-.00987	.27189	.16453	1.65254	5.00012
4.600	15.553	.39953	.10238	-.05151	-.05165	-.00047	-.00924	.35745	.20575	1.73728	5.00024
4.600	20.651	.58494	.10565	-.06871	-.04489	-.00308	-.00940	.51909	.30516	1.67156	5.00825
4.600	25.761	.78715	.11178	-.09349	-.04465	-.00558	-.00998	.69033	.44278	1.49134	5.00843
4.600	30.884	1.01556	.11793	-.12030	-.04232	-.00509	-.01109	.91152	.62259	1.30284	5.00858

UPWT-1117(LA-46B)ORBITER (B1WVS0E1F1) (F90023)

PARAMETRIC DATA

BETA = .000 ELEVTR = -40.000
BDFLAP = -11.700 SPDBK = 55.000

RUN NO. 16/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
2.500	-1.720	-.18980	.17119	.07534	-.00361	.00026	-.00059	-.18458	.17681	-1.04390	-.01650
2.500	-1.353	-.17737	.17015	.07457	-.00238	.00044	-.00059	-.17339	.17429	-.99483	-.01771
2.500	-.327	-.14461	.16727	.07092	-.00289	.00003	-.00079	-.14266	.16809	-.85455	-.01557
2.500	.716	-.10754	.16414	.06748	-.00215	.00006	-.00078	-.10359	.16276	-.67515	-.01702
2.500	1.748	-.07210	.16085	.06399	-.00179	-.00025	-.00109	-.07697	.15858	-.48535	-.01585
2.500	3.820	-.00337	.15321	.05745	-.00114	.00020	-.00068	-.01357	.15264	-.08889	-.01749
2.500	7.953	.13394	.14087	.04817	-.00289	.00075	-.00094	.11317	.15565	.71605	-.01710
2.500	12.101	.27595	.13216	.04214	-.00326	.00005	-.00078	.24211	.18703	1.29418	-.01658
2.500	15.214	.39365	.12401	.03853	-.00349	.00057	-.00084	.34731	.22297	1.55765	-.01699
2.500	20.411	.58425	.11058	.03359	-.00318	.00053	-.00053	.50399	.30749	1.65585	-.01544
2.500	25.613	.78301	.09907	.02903	-.00277	.00128	-.00038	.66325	.42722	1.55250	-.01686
2.500	30.832	.99349	.08830	.02646	-.00314	.00187	-.00050	.83783	.58509	1.38090	-.01809

RUN NO. 18/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
3.950	-1.521	-.13337	.12566	.02667	.00477	.00027	-.00043	-.12993	.12916	-1.00639	.01569
3.950	-1.308	-.12702	.12484	.02383	.00612	.00050	-.00026	-.12414	.12771	-.97199	.01477
3.950	-.157	-.10221	.12115	.02469	.00406	.00009	-.00034	-.10188	.12143	-.83901	.01658
3.950	.843	-.07806	.11842	.02210	.00373	-.00001	-.00038	-.07979	.11725	-.68046	.01708
3.950	1.892	-.05191	.11606	.02196	.00497	.00053	-.00043	-.05571	.11429	-.48750	.01675
3.950	3.926	.00340	.11085	.02287	.00723	.00102	-.00059	-.00419	.11582	-.03783	.01478
3.950	7.992	.11249	.10177	.02047	.00695	.00113	-.00080	.09725	.11542	.83528	.01481
3.950	12.079	.22122	.09706	.02009	.00192	.00081	-.00033	.19001	.14121	1.38811	.01704
3.950	15.140	.31651	.09354	.02349	.00340	.00109	-.00054	.28119	.17296	1.62523	.01597
3.950	20.266	.48814	.08853	.02780	.00576	.00171	-.00036	.42726	.25213	1.69457	.01477
3.950	25.401	.67346	.08509	.03127	.00532	.00218	-.00057	.57165	.35575	1.56352	.01550
3.950	30.552	.88008	.08183	.03359	.00182	.00096	-.00008	.71623	.51779	1.38324	.01757

UPWT-1117(LA-46B)ORBITER (B1WVSOE1F1) (OH5025)

PARAMETRIC DATA

BETA = .000 ELEVTR = -40.000
BDFLAP = -11.700 SPDBRK = 55.000

RUN NO. 20/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
4.600	-1.059	-.10975	.11458	.01729	.00806	.00056	-.00029	-.10763	.11657	-.92337	-.00470
4.600	-.706	-.10166	.11307	.01723	.00838	.00063	-.00029	-.10026	.11451	-.87592	-.00482
4.600	.307	-.07743	.10932	.01664	.00943	.00065	-.00033	-.07601	.10899	-.71638	-.00510
4.600	1.317	-.05738	.10614	.01436	.00712	.00010	-.00019	-.05939	.10479	-.57057	-.00544
4.600	2.331	-.02971	.10271	.01684	.01060	.00130	-.00041	-.03187	.10141	-.33388	-.00555
4.600	4.365	.01487	.09758	.01524	.00821	.00090	-.00015	.00740	.09843	.07522	-.00586
4.600	8.414	.11243	.08928	.01584	.01020	.00100	-.00029	.08815	.09477	.93007	-.00544
4.600	12.484	.21780	.08457	.02138	.01000	.00134	-.00028	.19435	.12976	1.49782	-.00608
4.600	15.525	.30354	.08164	.02304	.00774	.00141	-.00045	.27051	.15991	1.69228	-.00601
4.600	20.614	.46572	.07893	.02656	.00855	.00219	-.00058	.40811	.23786	1.71574	-.00620
4.600	25.720	.64448	.07818	.02636	.00949	.00177	-.00032	.56570	.35012	1.55145	-.00455
4.600	30.830	.83877	.07658	.02699	.00817	.00176	-.00035	.68099	.49553	1.37409	-.00484

UPWT-1117(LA-46B)ORBITER (B1WVSOE1F1) (OH5024)

PARAMETRIC DATA

BETA = 5.000 ELEVTR = -40.000
BDFLAP = -11.700 SPDBRK = 55.000

RUN NO. 17/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
2.500	-1.719	-.18895	.16780	.06737	-.10861	.00983	-.00394	-.16583	.17339	-1.06022	5.08968
2.500	-1.356	-.17568	.16759	.06723	-.10542	.00931	-.00423	-.17167	.17179	-.99978	5.08750
2.500	-.326	-.14220	.16546	.06576	-.10155	.00849	-.00467	-.14126	.16626	-.84959	5.08512
2.500	.712	-.10741	.16185	.06201	-.09793	.00771	-.00453	-.10941	.16551	-.68158	5.08295
2.500	1.741	-.07373	.15977	.05944	-.09425	.00722	-.00424	-.07855	.15745	-.49885	5.08057
2.500	3.812	-.00502	.15438	.05462	-.08957	.00593	-.00416	-.01527	.15379	-.09936	5.07807
2.500	7.953	.13272	.14326	.04638	-.08533	.00394	-.00484	.11162	.16025	.69657	5.07581
2.500	12.105	.27784	.13326	.04147	-.08318	.00223	-.00519	.24371	.16857	1.29546	5.07513
2.500	15.214	.39394	.12277	.03527	-.08194	.00081	-.00554	.34791	.22185	1.56825	5.07455
2.500	20.411	.58615	.10907	.02918	-.07229	-.00477	-.00539	.51131	.32564	1.65748	5.07371
2.500	25.613	.78399	.09914	.02706	-.06354	-.01016	-.00717	.66499	.42832	1.55242	5.07222
2.500	30.832	.99193	.09061	.02616	-.05381	-.01204	-.00768	.80531	.58519	1.37379	5.07350

UPWT-1117(LA-46B)ORBITER (B1WVSDE1F1) (BHS024)

PARAMETRIC DATA

BETA = 5.000 ELEVTR = -40.000
BDFLAP = -11.700 SPDBRK = 55.000

RUN NO. 19/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
3.950	-1.531	-.13274	.12722	.02423	-.08625	.01063	-.00059	-.12929	.13072	-.98903	5.04834
3.950	-1.171	-.12582	.12635	.02245	-.08653	.00990	-.00067	-.12321	.12890	-.95584	5.04910
3.950	-.153	-.09800	.12284	.02324	-.08207	.01005	-.00124	-.09767	.12319	-.79343	5.04655
3.950	.866	-.07302	.11944	.02237	-.08018	.01008	-.00199	-.07482	.11832	-.63232	5.04562
3.950	1.882	-.04818	.11634	.02046	-.07955	.00948	-.00245	-.05197	.11479	-.45312	5.04599
3.950	3.915	.00513	.11073	.01931	-.07705	.00884	-.00368	-.00245	.11083	-.02207	5.04517
3.950	7.993	.11253	.10199	.01665	-.07463	.00698	-.00593	.09726	.11665	.83379	5.04458
3.950	12.085	.22853	.09616	.01883	-.06993	.00485	-.00721	.20333	.14188	1.43315	5.04259
3.950	15.141	.31938	.09323	.01944	-.06828	.00253	-.00754	.28395	.17341	1.63749	5.04329
3.950	20.262	.48791	.08852	.02254	-.06042	-.00230	-.00766	.42622	.25179	1.69333	5.04268
3.950	25.396	.67550	.08548	.02856	-.05166	-.00538	-.00791	.57356	.36692	1.56318	5.04538
3.950	30.549	.87874	.08295	.03161	-.05122	-.00652	-.00898	.71461	.51807	1.37985	5.04802

RUN NO. 21/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
4.600	-1.041	-.11012	.11537	.01764	-.07619	.00844	-.00071	-.10801	.11736	-.92038	5.03557
4.600	-.704	-.10459	.11444	.01677	-.07669	.00832	-.00086	-.10317	.11572	-.89169	5.03593
4.600	.307	-.08180	.11068	.01574	-.07456	.00750	-.00146	-.08239	.11024	-.74749	5.03562
4.600	1.319	-.05729	.10724	.01603	-.07098	.00768	-.00194	-.05974	.10590	-.56413	5.03468
4.600	2.333	-.03398	.10343	.01372	-.07118	.00690	-.00268	-.03817	.10196	-.37434	5.03480
4.600	4.363	.01766	.09699	.01421	-.06549	.00721	-.00409	.01023	.09805	.10435	5.03229
4.600	8.411	.10939	.08997	.01321	-.06479	.00484	-.00514	.09505	.10550	.90526	5.03265
4.600	12.481	.21323	.08571	.01607	-.06197	.00248	-.00701	.18967	.12976	1.46167	5.03219
4.600	15.527	.30052	.08273	.01848	-.05680	.00061	-.00754	.26742	.16014	1.66992	5.03570
4.600	20.616	.46097	.07998	.02183	-.04940	-.00239	-.00771	.40329	.23716	1.70059	5.02949
4.600	25.717	.63877	.07895	.02464	-.04388	-.00456	-.00837	.54124	.34831	1.55391	5.02895
4.600	30.827	.83146	.07751	.02528	-.04314	-.00543	-.00922	.67427	.49263	1.36872	5.02814

UPWT-1117(LA-46B)ORBITER (B1WVS2E1F1) (RH9025)

PARAMETRIC DATA

BETA = .000 ELEVTR = 10.000
BDFLAP = 16.300 SPDBRK = 55.000

RUN NO. 28/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
2.500	-1.680	-.04399	.13983	-.02476	-.00233	.00054	-.00023	-.04187	.14111	-.29672	-.00002
2.500	-1.306	-.03350	.13953	-.02529	-.00263	.00064	-.00027	-.03031	.14026	-.21611	.00038
2.500	-.274	-.00236	.13911	-.02661	-.00215	.00065	-.00020	-.00170	.13912	-.01219	.00070
2.500	.763	.03171	.13848	-.02815	-.00190	.00080	-.00034	.02987	.13889	.21503	.00088
2.500	1.796	.06429	.13812	-.02854	.00030	.00123	-.00028	.05993	.14007	.42786	-.00252
2.500	3.878	.13092	.13714	-.03105	.00033	.00112	-.00035	.12044	.14562	.82711	-.00074
2.500	8.050	.26955	.13500	-.03468	-.00035	.00112	-.00031	.24799	.17141	1.44674	-.00109
2.500	12.243	.42395	.13064	-.03468	-.00202	.00118	-.00057	.38661	.21757	1.77693	-.00020
2.500	15.395	.54673	.12917	-.03482	-.00023	.00148	-.00045	.49282	.26957	1.82759	-.00296
2.500	20.668	.76059	.12569	-.03936	-.00019	.00120	-.00019	.66728	.38605	1.72850	-.00249
2.500	25.937	1.00021	.12220	-.05310	-.00038	.00121	-.00007	.84652	.54735	1.54653	-.00341
2.500	31.245	1.25892	.11646	-.06859	-.00100	.00149	-.00024	1.01592	.75257	1.34993	-.00335

RUN NO. 30/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
3.950	-1.537	-.04839	.10592	-.03260	.00129	.00219	-.00008	-.04553	.10718	-.42475	-.00760
3.950	-1.165	-.04079	.10528	-.03294	.00052	.00196	-.00001	-.03864	.10609	-.36421	-.00599
3.950	-.155	-.01449	.10337	-.03163	.00260	.00265	-.00006	-.01421	.10341	-.13741	-.00856
3.950	.869	.00842	.10224	-.03165	.00214	.00225	.00000	.00687	.10235	.06709	-.00615
3.950	1.893	.03403	.10119	-.03063	.00356	.00247	.00007	.03067	.10225	.29991	-.00695
3.950	3.935	.08222	.09906	-.02869	.00358	.00237	.00002	.07523	.10446	.72017	-.00527
3.950	8.038	.19761	.09575	-.02793	.00460	.00206	.00004	.18228	.12244	1.48878	-.00659
3.950	12.157	.32595	.09618	-.02880	.00288	.00203	.00013	.29859	.16266	1.83441	-.00612
3.950	15.241	.43272	.09716	-.02913	.00303	.00266	-.00007	.39196	.20749	1.88902	-.00721
3.950	20.404	.63153	.09947	-.03555	.00377	.00260	.00027	.55723	.31341	1.77795	-.00797
3.950	25.592	.85965	.10351	-.04683	.00437	.00243	.00043	.73061	.46468	1.57228	-.00942
3.950	30.785	1.10718	.10790	-.06049	.00070	.00256	.00012	.89595	.65938	1.35878	-.00624

UPWT-1117(LA-46B)ORBITER (B1WVS2E1F1) (RHG025)

PARAMETRIC DATA

BETA = .000 ELEVTR = 10.000
BDFLAP = 16.300 SPDBRK = 55.000

RUN NO. 32/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
4.600	-1.045	-.03422	.09451	-.03240	.00251	-.00106	.00046	-.03249	.09511	-.34159	-.00061
4.600	-.706	-.02508	.09366	-.03112	.00468	-.00039	.00034	-.02393	.09396	-.25463	-.00310
4.600	.306	-.00473	.09211	-.03099	.00385	-.00094	.00040	-.00522	.09209	-.05666	-.00045
4.600	1.321	.01753	.09065	-.02920	.00623	-.00072	.00038	.01544	.09193	.16959	-.00153
4.600	2.341	.04303	.08917	-.02654	.00871	-.00029	.00031	.03335	.09085	.43311	-.00310
4.600	4.373	.08910	.08696	-.02477	.00828	-.00026	.00027	.06221	.09359	.87928	-.00141
4.600	8.443	.19253	.08360	-.02507	.00679	-.00080	.00037	.17817	.11996	1.60571	-.00052
4.600	12.534	.31117	.08474	-.02575	.00648	-.00127	.00062	.26536	.15025	1.85922	-.00051
4.600	15.595	.41414	.08721	-.02708	.00588	.00001	.00007	.37545	.19533	1.92215	-.00202
4.600	20.722	.60824	.09256	-.03190	.00840	-.00075	.00079	.53614	.30179	1.77655	-.00241
4.600	25.861	.82688	.09855	-.04420	.00637	-.00129	.00091	.79109	.44935	1.56022	-.00140
4.600	31.015	1.07093	.10466	-.05303	.00808	-.00015	.00074	.86389	.64150	1.24658	-.00451

UPWT-1117(LA-46B)ORBITER (B1WVS2E1F1) (RHG026)

PARAMETRIC DATA

BETA = 5.000 ELEVTR = 10.000
BDFLAP = 16.300 SPDBRK = 55.000

RUN NO. 29/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
2.500	-1.679	-.84522	.13969	-.03124	-.10096	.00642	.00574	-.04111	.14095	.29167	5.19931
2.500	-1.325	-.03266	.13931	-.03139	-.10031	.00661	.00602	-.02943	.14003	.21015	5.19812
2.500	-.283	-.00002	.13878	-.03245	-.09717	.00604	-.00595	.00067	.13878	.00480	5.19720
2.500	.751	.03389	.13836	-.03405	-.09391	.00581	-.00607	.03207	.13879	.23107	5.19489
2.500	1.791	.06603	.13809	-.03566	-.09162	.00537	-.00613	.06168	.14009	.44031	5.19455
2.500	3.858	.13363	.13679	-.03805	-.08615	.00438	-.00655	.12410	.14549	.85295	5.19280
2.500	8.045	.27579	.13400	-.04101	-.08169	.00277	.00859	.25432	.17128	1.48484	5.19140
2.500	12.236	.42916	.12963	-.04145	-.07653	.00162	.01081	.39193	.21764	1.80082	5.09819
2.500	15.390	.54852	.12710	-.04280	-.07289	.00022	-.01180	.49512	.26811	1.84658	5.09912
2.500	20.651	.76833	.12244	-.05091	-.06414	-.00290	-.01267	.67578	.38555	1.75279	5.09876
2.500	25.931	1.00121	.11989	-.06153	-.05451	-.00586	-.01369	.84798	.54553	1.55413	5.09609
2.500	31.231	1.25563	.11826	-.07308	-.04610	-.00829	-.01427	1.01234	.75216	1.34591	5.09448

UPWT-1117(LA-46B)ORBITER (B1WVS2E1F1) (RHG026)

PARAMETRIC DATA

BETA = 5.000 ELEVTR = 10.000
BDFLAP = 16.350 SPDBRK = 55.000

RUN NO. 31/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
3.950	-1.529	-.04745	.10759	-.03534	-.08401	.00722	-.00526	-.04456	.10882	-.40952	5.05885
3.950	-1.174	-.04111	.10718	-.03565	-.08468	.00681	-.00539	-.03890	.10800	-.36021	5.06081
3.950	-.155	-.01400	.10560	-.03436	-.08045	.00683	-.00588	-.01371	.10563	-.12983	5.05803
3.950	.866	.00982	.10369	-.03476	-.07759	.00655	-.00616	.00825	.10383	.07949	5.05724
3.950	1.887	.03601	.10200	-.03445	-.07654	.00694	-.00659	.03264	.10313	.31645	5.05633
3.950	3.933	.08985	.09919	-.03430	-.07287	.00682	-.00744	.08184	.10505	.77901	5.05486
3.950	8.030	.20055	.09657	-.03477	-.07158	.00665	-.00922	.18509	.12364	1.49708	5.05296
3.950	12.138	.32630	.09582	-.03429	-.06745	.00569	-.01079	.29885	.16229	1.84151	5.05962
3.950	15.235	.43201	.09682	-.03469	-.06323	.00447	-.01133	.39138	.20693	1.89134	5.05056
3.950	20.393	.62869	.09942	-.04105	-.05144	-.00044	-.00994	.55464	.31226	1.77620	5.05225
3.950	25.580	.85238	.10335	-.05001	-.04239	-.00304	-.01019	.72421	.46125	1.57009	5.04943
3.950	30.779	1.09896	.10877	-.06159	-.04036	-.00398	-.01181	.88851	.65582	1.35481	5.05031

RUN NO. 33/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
4.600	-1.064	-.03735	.09785	-.03056	-.07556	.00177	-.00487	-.03552	.09852	-.36057	5.05188
4.600	-.710	-.02825	.09719	-.02968	-.07414	.00184	-.00496	-.02706	.09753	-.27742	5.05110
4.600	.305	-.00419	.09495	-.02839	-.06921	.00224	-.00535	-.00470	.09493	-.04951	5.04788
4.600	1.319	.01692	.09334	-.02917	-.06981	.00149	-.00553	.01477	.09371	.15759	5.05080
4.600	2.337	.04075	.09152	-.02869	-.06724	.00172	-.00585	.03699	.09311	.39722	5.04956
4.600	4.365	.08775	.08876	-.02870	-.06484	.00132	-.00664	.08074	.09518	.84820	5.05016
4.600	8.444	.19337	.08601	-.02587	-.06065	.00190	-.00835	.17864	.11347	1.57439	5.04492
4.600	12.532	.31166	.08611	-.02706	-.05710	.00055	-.00931	.28555	.15168	1.88252	5.04399
4.600	15.590	.41308	.08843	-.02984	-.05306	-.00090	-.00926	.37412	.19519	1.90590	5.04465
4.600	20.720	.60957	.09265	-.03413	-.03942	-.00429	-.00823	.53736	.30232	1.77748	5.04171
4.600	25.860	.82225	.09898	-.04510	-.03540	-.00660	-.00892	.69674	.44771	1.55624	5.04203
4.600	31.013	1.06406	.10538	-.05382	-.03428	-.00692	-.01067	.85765	.63855	1.34311	5.04218

UPWT-1117(LA-46B)ORBITER (B1WVS2E1F1) (RHG027)

PARAMETRIC DATA

BETA = .000 ELEVTR = -40.000
BDFLAP = -11.700 SPDBRK = 55.000

RUN NO. 10/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
2.500	-1.707	-.18530	.16511	.06653	-.00112	.00078	-.00042	-.16030	.17035	-1.05719	.00117
2.500	-1.358	-.17116	.16371	.06519	-.00237	.00077	-.00045	-.16724	.16772	-.99710	.00236
2.500	-.324	-.13681	.16329	.06458	-.00231	.00164	-.00022	-.13589	.16405	-.82828	.00159
2.500	.715	-.10153	.16274	.06391	-.00160	.00118	-.00014	-.10355	.16146	-.64135	.00167
2.500	1.912	-.06010	.16006	.06356	-.00005	.00095	-.00050	-.06541	.15795	-.41407	.00079
2.500	3.827	.00463	.15505	.06037	.00030	.00077	-.00052	-.00572	.15501	-.03692	.00099
2.500	7.965	.14565	.14428	.06150	.00160	.00058	-.00085	.12426	.16307	.76197	.00219
2.500	12.134	.29541	.13292	.06493	.00116	.00077	-.00073	.26185	.19225	1.36198	.00048
2.500	15.253	.41174	.12608	.06940	-.00128	.00122	-.00051	.36407	.22995	1.58316	.00176
2.500	20.467	.61250	.11393	.07890	.00031	.00071	-.00020	.53400	.32091	1.66401	.00083
2.500	25.695	.82912	.10343	.08754	.00078	.00123	-.00004	.70228	.45279	1.55133	.00083
2.500	30.934	1.05135	.09329	.09851	-.00100	.00172	-.00012	.85385	.62047	1.37514	.00122

RUN NO. 12/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
3.950	-1.507	-.12401	.12424	.01986	.00403	.00072	.00012	-.12070	.12745	-.94703	-.02088
3.950	-1.171	-.11513	.12327	.02088	.00498	.00092	.00010	-.11258	.12559	-.89642	-.02151
3.950	-.152	-.08998	.12052	.02080	.00470	.00094	.00007	-.08964	.12075	-.74233	-.02114
3.950	.872	-.06325	.11804	.02209	.00702	.00124	-.00012	-.06504	.11707	-.55560	-.02255
3.950	1.888	-.03871	.11589	.02167	.00665	.00110	-.00001	-.04251	.11455	-.37107	-.02202
3.950	3.928	.01467	.11083	.02274	.00559	.00031	-.00015	.00704	.11157	.06313	-.02045
3.950	8.011	.12917	.10395	.02891	.00712	.00074	-.00006	.11343	.12094	.93790	-.02153
3.950	12.106	.25295	.09926	.03825	.00782	.00135	-.00035	.22651	.15010	1.50904	-.02227
3.950	15.171	.34649	.09706	.04657	.00428	.00102	-.00029	.30992	.18435	1.67621	-.02029
3.950	20.304	.52316	.09345	.06094	.00397	.00090	-.00010	.45822	.26918	1.70230	-.02015
3.950	25.453	.72831	.09002	.07596	.00599	.00148	.00013	.61893	.39429	1.56973	-.02127
3.950	30.616	.94616	.08726	.09084	.00345	.00222	-.00009	.76983	.55696	1.38221	-.02043

UPWT-1117(LA-46B)ORBITER (B1WVS2E1F1) (RHG027)

PARAMETRIC DATA

BETA = .000 ELEVTR = -40.000
BDFLAP = -11.700 SPDBRK = 55.000

RUN NO. 14/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
4.600	-1.056	-.09971	.11405	.01232	.00652	.00026	.00023	-.09759	.11587	-.84229	-.00228
4.600	-.697	-.08934	.11262	.01272	.00769	.00073	.00020	-.08796	.11370	-.77363	-.00303
4.600	.315	-.06545	.10910	.01267	.00710	.00052	.00022	-.06605	.10874	-.60739	-.00242
4.600	1.321	-.04220	.10603	.01396	.00896	.00066	.00000	-.04463	.10503	-.42496	-.00319
4.600	2.340	-.01489	.10266	.01519	.01176	.00061	-.00026	-.01907	.10195	-.18705	-.00429
4.600	4.370	.03003	.09734	.01595	.00796	.00017	-.00003	.02253	.09934	.22677	-.00186
4.600	8.424	.13151	.09062	.02158	.00952	-.00007	.00015	.11682	.10890	1.07266	-.00232
4.600	12.490	.24479	.08679	.03163	.00988	-.00007	.00015	.22014	.13765	1.59923	-.00236
4.600	15.545	.33652	.08555	.04347	.00882	.00178	-.00048	.30128	.17251	1.74644	-.00331
4.600	20.643	.50720	.08416	.05392	.00922	.00104	-.00012	.44497	.25756	1.72759	-.00324
4.600	25.169	.67188	.08422	.06308	.00918	.00069	.00027	.57227	.36197	1.58102	-.00246
4.600	30.876	.90141	.08242	.07969	.00933	.00179	.00010	.73137	.53332	1.37134	-.00334

UPWT-1117(LA-46B)ORBITER (B1WVS2E1F1) (RHG028)

PARAMETRIC DATA

BETA = 5.000 ELEVTR = -40.000
BDFLAP = -11.700 SPDBRK = 55.000

RUN NO. 11/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
2.500	-1.695	-.18323	.16642	.06163	-.10337	.00995	-.00299	-.17823	.17177	-1.03762	5.10561
2.500	-1.360	-.17245	.16567	.06131	-.10259	.01001	-.00303	-.16847	.16971	-.99268	5.10492
2.500	-.323	-.13533	.16282	.06053	-.09974	.01019	-.00306	-.13441	.16358	-.82166	5.10238
2.500	.715	-.10003	.16059	.05975	-.09951	.00938	-.00343	-.10202	.15932	-.64035	5.10333
2.500	1.752	-.06602	.15998	.06022	-.09359	.00794	-.00424	-.07088	.15789	-.44893	5.09982
2.500	3.824	.00371	.15457	.05791	-.08967	.00718	-.00431	-.00661	.15448	-.04278	5.09743
2.500	7.969	.14424	.14614	.05917	-.08426	.00559	-.00574	.12258	.16473	.74417	5.09446
2.500	12.134	.29637	.13399	.06216	-.07698	.00280	-.00678	.26159	.19329	1.35335	5.09107
2.500	15.253	.41486	.12568	.06528	-.07371	.00119	-.00715	.36718	.23040	1.59369	5.08962
2.500	20.468	.61968	.11095	.07193	-.06313	-.00175	-.00866	.54176	.32064	1.68961	5.08305
2.500	25.692	.83125	.10129	.08051	-.05434	-.00504	-.00998	.70517	.45165	1.56139	5.07918
2.500	30.933	1.05281	.09356	.09374	-.04772	-.00791	-.01075	.85498	.62143	1.37583	5.07616

UPWT-1117(LA-46B)ORBITER (B1WVS2E1F1) (RHG028)

PARAMETRIC DATA

BETA = 5.000 ELEVTR = -40.000
BDFLAP = -11.700 SPDBRK = 55.000

RUN NO. 13/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
3.950	-1.506	-.12394	.12668	.01955	-.08584	.00924	-.00065	-.12057	.12990	-.92819	5.06974
3.950	-1.170	-.11374	.12554	.01984	-.08414	.00944	-.00090	-.11116	.12784	-.86951	5.06862
3.950	-.149	-.09084	.12287	.01904	-.08185	.00893	-.00111	-.09052	.12319	-.73529	5.06782
3.950	.866	-.06499	.11968	.01894	-.08123	.00862	-.00165	-.06679	.11869	-.56276	5.06786
3.950	1.886	-.03848	.11650	.01849	-.08049	.00863	-.00239	-.04229	.11517	-.36722	5.06762
3.950	3.929	.01721	.11027	.02019	-.07664	.00825	-.00352	.00962	.11119	.08648	5.06591
3.950	8.005	.13098	.10296	.02399	-.07376	.00768	-.00585	.11537	.12020	.95985	5.06474
3.950	12.095	.25120	.09749	.03296	-.06968	.00660	-.00769	.22520	.14797	1.52196	5.06318
3.950	15.171	.34874	.09482	.04048	-.06555	.00455	-.00870	.31178	.18278	1.70578	5.06173
3.950	20.305	.52465	.09178	.05525	-.05348	-.00029	-.00762	.46020	.26814	1.71639	5.05775
3.950	25.453	.72489	.08935	.07159	-.04354	-.00310	-.00783	.61614	.39221	1.57093	5.05427
3.950	30.617	.94481	.08786	.08953	-.03979	-.00361	-.00886	.76835	.55680	1.37994	5.05229

RUN NO. 15/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
4.600	-1.048	-.09931	.11543	.01269	-.07679	.00753	-.00056	-.09718	.11723	-.82959	5.05696
4.600	-.704	-.09126	.11414	.01310	-.07553	.00737	-.00084	-.08985	.11525	-.77957	5.05651
4.600	.307	-.06714	.11016	.01346	-.07271	.00710	-.00135	-.06773	.10980	-.61684	5.05551
4.600	1.322	-.04307	.10696	.01299	-.07061	.00796	-.00194	-.04553	.10594	-.42975	5.05474
4.600	2.337	-.01815	.10352	.01294	-.06774	.00700	-.00251	-.02236	.10269	-.21772	5.05360
4.600	4.365	.03043	.09739	.01451	-.06582	.00697	-.00385	.02293	.09943	.23059	5.05357
4.600	8.424	.13027	.09076	.01895	-.06393	.00540	-.00583	.11557	.10887	1.06153	5.05320
4.600	12.496	.24148	.08601	.02942	-.05870	.00448	-.00750	.21715	.13623	1.59494	5.05135
4.600	15.544	.33394	.08403	.03838	-.05177	.00278	-.00789	.29921	.17044	1.75548	5.04857
4.600	20.645	.50050	.08387	.04915	-.04260	-.00118	-.00744	.43879	.25495	1.72119	5.04625
4.600	25.753	.68995	.08337	.06191	-.03354	-.00284	-.00789	.58519	.37486	1.56108	5.04337
4.600	30.874	.89229	.08229	.07617	-.03248	-.00327	-.00931	.72362	.52851	1.3 .17	5.04295

UPWT-1117(LA-46B)ORBITER (B1WVS0C3E1F1) (RHG029)

PARAMETRIC DATA

BETA = .000 ELEVTR = 10.000
BDFLAP = 16.300 SPDBRK = 85.000

RUN NO. 34/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
2.500	-1.690	-.05734	.14169	-.01700	-.00490	.00148	-.00054	-.05313	.14332	-.37074	.00260
2.500	-1.320	-.04556	.14132	-.01775	-.00392	.00149	-.00050	-.04230	.14233	-.29717	.00096
2.500	-.281	-.01518	.14083	-.01981	-.00569	.00122	-.00043	-.01449	.14090	-.10285	.00322
2.500	.759	.01806	.14054	-.02067	-.00482	.00146	-.00045	.01620	.14076	.11508	.00619
2.500	1.801	.04992	.14030	-.02129	-.00476	.00138	-.00056	.04549	.14180	.32079	-.00060
2.500	3.876	.11520	.13965	-.02309	-.00575	.00119	-.00056	.10550	.14712	.71710	.00026
2.500	8.058	.25832	.13735	-.02576	-.00712	.00127	-.00063	.23651	.17228	1.37348	.00223
2.500	12.253	.41649	.13302	-.02707	-.00634	.00167	-.00078	.37878	.21838	1.73446	.00050
2.500	15.404	.54235	.13066	-.03011	-.00506	.00185	-.00076	.48816	.27503	1.80781	-.00209
2.500	20.667	.76051	.12709	-.03869	-.00655	.00214	-.00077	.66672	.38733	1.72133	-.00196
2.500	25.941	.99415	.12384	-.05314	-.00556	.00150	-.00071	.83982	.54625	1.53742	.00185
2.500	31.233	1.25134	.11892	-.07063	-.00488	.00195	-.00061	1.00831	.75053	1.34347	.00192

RUN NO. 36/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
3.950	-1.494	-.06047	.10808	-.02392	-.00412	.00183	-.00069	.05763	.10962	-.52572	.00069
3.950	-1.179	-.05385	.10747	-.02414	-.00414	.00181	-.00058	.05162	.10855	-.47557	.00046
3.950	-.155	-.03108	.10585	-.02419	-.00540	.00144	-.00054	-.03079	.10593	-.29069	.00150
3.950	.876	-.00748	.10435	-.02321	-.00481	.00152	-.00059	.00908	.10422	-.08709	-.00022
3.950	1.899	.01413	.10314	-.02217	-.00545	.00128	-.00050	.01072	.10355	.10353	-.00005
3.950	3.905	.06408	.10123	-.02061	-.00569	.00141	-.00052	.05703	.10536	.54134	-.00166
3.950	8.034	.18187	.09762	-.02268	-.00480	.00120	-.00022	.16644	.12208	1.36336	-.00109
3.950	12.154	.31188	.09671	-.02404	-.00648	.00155	-.00040	.28452	.16020	1.77606	.00030
3.950	15.234	.41776	.09737	-.02644	-.00735	.00133	-.00031	.37750	.20372	1.85303	.00135
3.950	20.405	.62030	.10006	-.03270	-.00469	.00174	-.00039	.54649	.31905	1.76259	-.00196
3.950	25.582	.84719	.10405	-.04502	-.00535	.00184	-.00041	.71921	.45956	1.56455	.00006
3.950	30.786	1.10176	.10891	-.05849	-.00374	.00296	-.00093	.89077	.65747	1.35484	-.00162

UPWT-1117(LA-46B)ORBITER (B1WVS0C3E1F1) (RH0029)

PARAMETRIC DATA

BETA = .000 ELEVTR = 10.000
BDFLAP = 16.300 SPDBRK = 55.000

RUN NO. 38/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
4.600	-1.031	-.04654	.09554	-.02202	-.00129	.00153	-.00052	-.04482	.09636	-.46507	-.00050
4.600	-.717	-.03976	.09495	-.02139	-.00133	.00149	-.00055	-.03857	.09544	-.40412	-.00070
4.600	.306	-.01956	.09327	-.02094	-.00082	.00135	-.00052	-.02006	.09317	-.21529	-.00178
4.600	1.319	-.00112	.09225	-.02038	-.00271	.00084	-.00037	-.00325	.09220	-.03521	-.00043
4.600	2.334	.01981	.09118	-.01944	-.00300	.00072	-.00023	.01608	.09191	.17500	-.00097
4.600	4.370	.06526	.08920	-.01769	-.00373	.00061	-.00030	.05828	.09392	.62059	-.00173
4.600	8.446	.17442	.08522	-.01818	-.00282	.00097	-.00018	.16001	.10992	1.45575	-.00226
4.600	12.523	.29475	.08569	-.01938	-.00389	.00099	-.00011	.26915	.14756	1.82402	-.00077
4.600	15.592	.39649	.08790	-.02292	-.00434	.00058	.00011	.35828	.19124	1.87346	.00011
4.600	20.724	.58929	.09353	-.02834	-.00433	.00084	.00013	.51806	.29601	1.75016	-.00039
4.600	25.860	.81024	.09979	-.03881	-.00301	.00100	.00002	.68558	.44320	1.54689	.00000
4.600	31.013	1.05352	.10630	-.05113	-.00189	.00143	.00010	.84815	.63391	1.33797	.00087

UPWT-1117(LA-46B)ORBITER (B1WVS0C3E1F1) (RH0030)

PARAMETRIC DATA

BETA = 5.000 ELEVTR = 10.000
BDFLAP = 16.300 SPDBRK = 55.000

RUN NO. 35/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
2.500	-1.670	-.05510	.14155	-.02423	-.10465	.00783	-.00628	-.05095	.14310	-.35603	5.14990
2.500	-1.326	-.04368	.14118	-.02421	-.10401	.00794	-.00634	-.04049	.14215	-.28423	5.14837
2.500	-.291	-.01199	.14057	-.02537	-.10101	.00749	-.00631	-.01127	.14063	-.08016	5.14517
2.500	.751	.02033	.14004	-.02696	-.09995	.00662	-.00636	.01850	.14030	.13184	5.14507
2.500	1.793	.05503	.13955	-.02719	-.09677	.00629	-.00662	.05054	.14120	.35803	5.14218
2.500	3.879	.12089	.13862	-.02953	-.09451	.00497	-.00698	.11124	.14648	.75949	5.14262
2.500	8.052	.26551	.13518	-.03117	-.08893	.00416	-.00887	.24504	.17119	1.43137	5.13913
2.500	12.258	.42297	.13116	-.03364	-.08532	.00295	-.01095	.38548	.21797	1.76848	5.13962
2.500	15.398	.54396	.12906	-.03761	-.08061	.00129	-.01171	.49007	.25883	1.82298	5.13932
2.500	20.653	.76007	.12389	-.04673	-.07143	-.00367	-.01254	.66752	.38401	1.73828	5.14582
2.500	25.922	.99474	.12129	-.06125	-.05909	-.00988	-.01191	.84164	.54394	1.54731	5.15456
2.500	31.217	1.24879	.12047	-.07410	-.04937	-.01208	-.01458	1.00546	.75020	1.34023	5.15267

UPWT-1117(LA-46B)ORBITER (B1WVS0C3E1F11 (RH0039)

PARAMETRIC DATA

BETA = 5.000 ELEVTR = 10.000
BDFLAP = 16.300 SPDBRK = 55.000

RUN NO. 37/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
3.950	-1.514	-.06066	.10903	-.02560	-.08887	.00718	-.00566	-.05776	.11060	-.52226	5.08426
3.950	-1.173	-.05301	.10867	-.02618	-.09064	.00790	-.00579	-.05077	.10973	-.46271	5.08668
3.950	-.154	-.03071	.10743	-.02725	-.08982	.00645	-.00624	-.03042	.10751	-.28296	5.08533
3.950	.855	-.00698	.10587	-.02660	-.08765	.00618	-.00665	-.00857	.10575	-.08107	5.08415
3.950	1.887	.01724	.10436	-.02663	-.08677	.00626	-.00714	.01379	.10487	.13152	5.08216
3.950	3.932	.06849	.10162	-.02755	-.08537	.00558	-.00773	.05137	.10608	.57848	5.08205
3.950	8.033	.18207	.09814	-.02673	-.08227	.00545	-.00935	.16657	.12261	1.35845	5.08082
3.950	12.150	.31159	.09748	-.02610	-.07601	.00404	-.01021	.28419	.16088	1.76587	5.08929
3.950	15.230	.41452	.09856	-.02811	-.07375	.00278	-.01121	.37407	.21398	1.83383	5.08021
3.950	20.394	.61285	.10108	-.03490	-.06392	-.00114	-.01143	.53921	.30830	1.74899	5.08139
3.950	25.573	.83862	.10555	-.04563	-.05689	-.00359	-.01145	.71090	.45720	1.55491	5.08303
3.950	30.770	1.08894	.11100	-.06084	-.05195	-.00447	-.01215	.87686	.65245	1.34699	5.08342

RUN NO. 39/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
4.600	-1.029	-.04916	.09909	-.02094	-.08270	.00562	-.00554	-.04738	.09995	-.47399	5.07142
4.600	-.714	-.04057	.09831	-.01911	-.07958	.00595	-.00579	-.03934	.09880	-.39818	5.06823
4.600	.305	-.02209	.09673	-.02034	-.08044	.00502	-.00605	-.02261	.09651	-.23399	5.06969
4.600	1.319	-.00115	.09502	-.02072	-.08041	.00449	-.00634	-.00333	.09497	-.03512	5.06977
4.600	2.337	.02321	.09299	-.01944	-.07803	.00455	-.00680	.01940	.09386	.20669	5.06698
4.600	4.374	.06799	.09074	-.02032	-.07768	.00403	-.00747	.06087	.09565	.63627	5.06627
4.600	8.440	.17242	.08799	-.01843	-.07445	.00369	-.00877	.15764	.11234	1.40328	5.06553
4.600	12.529	.29305	.08810	-.02116	-.06748	.00158	-.00888	.26696	.14957	1.78488	5.06562
4.600	15.590	.39043	.09014	-.02422	-.06511	-.00053	-.00913	.35184	.19175	1.83489	5.06799
4.600	20.717	.58666	.09512	-.02986	-.05842	-.00240	-.00957	.51507	.29650	1.73716	5.06598
4.600	25.857	.80386	.10213	-.04121	-.05368	-.00513	-.00965	.67884	.44249	1.53412	5.07081
4.600	31.009	1.04621	.10858	-.05266	-.04952	-.00518	-.01080	.84075	.63204	1.33022	5.07049

UPWT-1117(LA-46B)ORBITER (B1WVS0C3E1F1) (RHG031)

PARAMETRIC DATA

BETA = .000 ELEVTR = -40.000
BSFLAP = 11.700 SPDBRK = 55.000

RUN NO. 2/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
2.500	-1.722	-.19123	.17458	.07084	.00196	.00947	-.00067	-.18590	.16025	-1.03135	-.00214
2.500	-1.366	-.17921	.17348	.07035	.00176	.00039	-.00056	-.17502	.17770	-.98493	-.00200
2.500	-.315	-.14070	.16968	.06866	.00295	.00048	-.00067	-.13977	.17045	-.82000	-.00348
2.500	.716	-.10698	.16737	.06603	.00197	.00011	-.00073	-.10906	.16592	-.65689	-.00254
2.500	1.766	-.07213	.16552	.06619	.00177	.00806	-.00071	-.07719	.16322	-.47293	-.00270
2.500	3.821	-.00299	.15985	.06339	.00063	-.00051	-.00049	-.01364	.15930	-.08562	-.00159
2.500	7.963	.14115	.14737	.06391	.00105	.00017	-.00072	.11937	.16559	.72128	-.00209
2.500	12.127	.29270	.13676	.06594	.00218	.00068	-.00083	.25744	.19520	1.31887	-.00225
2.500	15.247	.41293	.12883	.06872	.00210	-.00013	-.00057	.36451	.23289	1.56516	-.00198
2.500	20.472	.61727	.11648	.07321	-.00065	.00065	-.00056	.53755	.32501	1.65394	-.00064
2.500	25.693	.82575	.10620	.07945	-.00157	.00084	-.00039	.69807	.45379	1.53880	-.00047
2.500	30.877	1.05122	.09509	.08718	-.00075	.00139	-.00071	.85343	.62119	1.37405	.00048

RUN NO. 4/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
3.950	-1.519	-.13083	.12713	.01868	.00537	-.00125	.00002	-.12742	.13056	-.97596	-.00229
3.950	-1.172	-.12291	.12604	.01885	.00487	-.00142	-.00002	-.12081	.12852	-.93609	-.00198
3.950	-.149	-.09688	.12317	.01935	.00517	-.00128	.00000	-.09656	.12343	-.78235	-.00260
3.950	.865	-.07428	.12083	.01783	.00350	-.00177	.00016	-.07609	.11970	-.63570	-.00157
3.950	1.889	-.04758	.11860	.01869	.00452	-.00181	.00005	-.05146	.11697	-.43995	-.00250
3.950	3.925	.00575	.11432	.02088	.00478	-.00164	.00003	-.00209	.11445	-.01825	-.00329
3.950	8.004	.12004	.10593	.02487	.00503	-.00191	.00025	.10412	.12161	.85617	-.00302
3.950	12.090	.23853	.10143	.03363	.00198	-.00133	.00013	.21290	.14914	1.42147	-.00132
3.950	15.165	.33809	.09773	.04207	.00481	-.00112	.00018	.30076	.18277	1.64556	-.00242
3.950	20.299	.51943	.09379	.05432	.00358	-.00130	.00010	.45463	.26817	1.69529	-.00160
3.950	25.447	.71773	.09145	.06749	.00154	-.00067	-.00011	.60880	.39096	1.55718	-.00169
3.950	30.611	.94198	.08911	.08387	.00201	.00044	.00026	.76533	.55636	1.37559	-.00043

LA46 A/B TABULATED SOURCE DATA

UPWT-1117(LA-46B)ORBITER (B1WVS0C3E1F1) (G#5031)

PARAMETRIC DATA

BETA = .000 ELEVTR = -40.000
BDFLAP = -11.700 SPDBRK = 55.000

RUN NO. 8/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
4.600	-1.031	-.10555	.11515	.01107	.01051	-.00163	.00019	-.10346	.11703	-.88404	-.00408
4.600	-.706	-.09704	.11366	.01129	.01056	-.00144	.00021	-.09563	.11484	-.83272	-.00452
4.600	.312	-.07393	.11051	.00986	.00906	-.00168	.00036	-.07453	.11011	-.67684	-.00380
4.600	1.324	-.04907	.10821	.01149	.01093	-.00178	.00024	-.05156	.10705	-.48166	-.00497
4.600	2.340	-.02834	.10594	.01140	.00945	-.00286	.00039	-.03264	.10479	-.31174	-.00598
4.600	4.366	.01898	.10087	.01350	.00921	-.00293	.00044	.01125	.10232	.11522	-.00454
4.600	8.426	.12006	.09339	.01824	.00847	-.00303	.00047	.10558	.10997	.95549	-.00369
4.600	12.487	.23407	.08925	.03005	.00898	-.00211	.00027	.20924	.13775	1.51897	-.00420
4.600	15.542	.32470	.08690	.03723	.00787	-.00232	.00039	.28955	.17072	1.69601	-.00279
4.600	20.644	.49793	.08576	.04862	.00866	-.00194	.00038	.43572	.25560	1.70434	-.00337
4.600	25.755	.68491	.08652	.05933	.00579	-.00161	.00016	.57846	.37515	1.54195	-.00303
4.600	30.875	.89787	.08472	.07545	.01147	.00005	-.00028	.72715	.53347	1.36306	-.00452

UPWT-1117(LA-46B)ORBITER (B1WVS0C3E1F1) (G#5032)

PARAMETRIC DATA

BETA = 5.000 ELEVTR = -40.000
BDFLAP = -11.700 SPDBRK = 55.000

RUN NO. 3/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
2.500	-1.714	-.18698	.17204	.06316	-.10354	.00838	.00398	-.18175	.17755	-1.02365	5.10655
2.500	-1.350	-.17558	.17119	.06300	-.10296	.00829	-.00398	-.17159	.17527	-.97851	5.10596
2.500	-.322	-.14093	.16832	.06214	-.09990	.00731	-.00436	-.13998	.16911	-.82775	5.10391
2.500	.712	-.10589	.16526	.06127	-.09781	.00669	-.00448	-.10794	.16393	-.65842	5.10259
2.500	1.751	-.07088	.16334	.06075	-.09514	.00650	-.00439	-.07584	.16110	-.47074	5.09978
2.500	3.821	-.00178	.15838	.05889	-.09354	.00610	-.00433	-.01233	.15791	-.07810	5.09837
2.500	7.971	.14126	.14932	.06147	-.08734	.00455	-.00614	.11919	.16745	.71173	5.09481
2.500	12.138	.29627	.13872	.06324	-.08365	.00335	-.00582	.26048	.19792	1.31619	5.09305
2.500	15.258	.41678	.12793	.06426	-.07809	.00161	-.00727	.36842	.23311	1.58047	5.09079
2.500	20.472	.61962	.11427	.06794	-.07028	-.00309	-.00789	.54053	.32376	1.66952	5.08841
2.500	25.364	.81497	.10513	.07465	-.05757	-.00972	-.00743	.69138	.44419	1.55683	5.08356
2.500	30.926	1.04939	.09577	.08533	-.04773	-.01292	-.00956	.85099	.62143	1.36927	5.08563

UPWT-1117(LA-46B)ORBITER (B1WBC3E1F1) (RHSD32)

PARAMETRIC DATA

BETA = 5.000 ELEVTR = -40.000
BDFLAP = -11.750 SPDBRK = 55.000

RUN NO. 5/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
3.950	-1.516	-.13160	.12883	.01799	-.08668	.00780	-.00037	-.12815	.13227	-.96882	5.05123
3.950	-1.170	-.12353	.12776	.01745	-.08588	.00762	-.00052	-.12089	.13025	-.92816	5.05075
3.950	-.154	-.09594	.12445	.01860	-.08199	.00737	-.00123	-.09561	.12471	-.76665	5.04824
3.950	.864	-.07324	.12217	.01780	-.08273	.00703	-.00174	-.07508	.12105	-.62022	5.04859
3.950	1.881	-.04668	.11925	.01728	-.08273	.00701	-.00226	-.05057	.11765	-.42982	5.04828
3.950	3.923	.00673	.11419	.01768	-.08068	.00570	-.00314	-.00199	.11438	-.00957	5.04745
3.950	8.007	.12003	.10600	.02209	-.07661	.00470	-.00531	.10459	.12168	.85545	5.04595
3.950	12.099	.24112	.10065	.03030	-.07084	.00273	-.00650	.21467	.14895	1.44119	5.04413
3.950	15.164	.33890	.09799	.04026	-.06650	.00256	-.00787	.30146	.18323	1.64539	5.04259
3.950	20.295	.51725	.09414	.05301	-.05781	-.00201	-.00839	.45249	.26771	1.69029	5.04085
3.950	25.444	.71563	.09214	.06765	-.05036	-.00557	-.00811	.60554	.39066	1.55085	5.03761
3.950	30.612	.93839	.09129	.08231	-.04651	-.00661	-.00845	.76112	.55642	1.35790	5.03828

RUN NO. 9/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
4.600	-1.031	-.10767	.11763	.01238	-.07529	.00564	-.00018	-.10554	.11955	-.88277	5.03732
4.600	-.704	-.09723	.11630	.01434	-.07116	.00617	-.00052	-.09579	.11749	-.81533	5.03489
4.600	.312	-.07651	.11394	.01337	-.07225	.00530	-.00111	-.07713	.11262	-.68485	5.03559
4.600	1.325	-.05254	.10985	.01193	-.07174	.00462	-.00171	-.05507	.10661	-.51704	5.03559
4.600	2.337	-.02837	.10661	.01178	-.06967	.00412	-.00221	-.03279	.10537	-.31152	5.03435
4.600	4.361	.01894	.10179	.01217	-.06926	.00343	-.00332	.01115	.10294	.10829	5.03475
4.600	8.425	.11972	.09404	.01735	-.06411	.00220	-.00535	.10465	.11055	.94648	5.03249
4.600	12.484	.23102	.08931	.02684	-.05755	-.00025	-.00623	.20625	.13713	1.50400	5.03098
4.600	15.543	.32303	.08728	.03533	-.05420	-.00113	-.00709	.28783	.17055	1.68571	5.03065
4.600	20.639	.49287	.08642	.04794	-.04654	-.00373	-.00749	.43978	.25459	1.69202	5.02951
4.600	25.752	.67807	.08738	.05714	-.04179	-.00657	-.00722	.57275	.37331	1.53424	5.02588
4.600	30.874	.88640	.08664	.07200	-.03640	-.00535	-.00837	.71633	.52922	1.35355	5.02640

UPWT-1117(LA-46B)ORBITER (B1WVSBE4E1F1) (E=0033)

PARAMETRIC DATA

BETA = .000 ELEVTR = 10.000
BDFLAP = 16.300 SPDBRK = 55.000

RUN NO. 40/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
2.500	-1.684	-.05496	.14306	-.02233	-.00378	.00006	-.00017	-.00073	.14481	-.35081	.00002
2.500	-1.312	-.04332	.14271	-.02212	-.00331	.00006	-.00026	-.00004	.14357	-.27857	-.00058
2.500	-.274	-.00832	.14196	-.02170	-.00287	.00049	-.00025	.00764	.14290	-.05348	-.00085
2.500	.768	.02422	.14135	-.02147	-.00124	.00081	-.00021	.02232	.14165	.15759	-.00031
2.500	1.810	.05819	.14196	-.02119	-.00197	.00073	-.00041	.05370	.14283	.37601	-.00128
2.500	3.902	.12741	.14036	-.02001	-.00172	.00059	-.00045	.11756	.14871	.79054	-.00069
2.500	8.095	.27617	.13878	-.01858	-.00308	.00075	-.00063	.25369	.17627	1.44009	-.00057
2.500	12.303	.43348	.13490	-.01725	-.00574	.00068	-.00065	.39478	.22417	1.76108	.00158
2.500	15.457	.56118	.13250	-.01770	-.00511	.00090	-.00055	.50557	.27727	1.82339	.00113
2.500	20.737	.78583	.12861	-.02081	-.00449	.00125	-.00059	.68939	.38553	1.72584	-.00014
2.500	26.020	1.02189	.12592	-.02935	-.00472	.00087	-.00065	.85397	.55145	1.53723	.00179
2.500	31.328	1.28685	.12131	-.04314	-.00352	.00113	-.00044	1.03617	.77279	1.34087	.00049

RUN NO. 42/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
3.950	-1.502	-.06104	.10926	-.02784	-.00122	.00002	-.00015	-.00816	.11083	-.52477	-.00276
3.950	-1.172	-.05279	.10849	-.02746	-.00144	.00010	-.00017	-.00056	.10954	-.40156	-.00250
3.950	-.154	-.02711	.10628	-.02560	.00041	.00014	-.00018	-.02683	.10535	-.25228	-.00345
3.950	.868	-.00287	.10486	-.02368	.00036	.00021	-.00020	-.00446	.11060	-.04256	-.00279
3.950	1.899	.02207	.10385	-.02138	.00098	.00042	-.00030	.01652	.10452	.17611	-.00309
3.950	3.947	.07533	.10181	-.01746	.00188	.00079	-.00033	.06815	.10675	.63836	-.00577
3.950	8.049	.19345	.09792	-.01763	.00068	.00013	-.00003	.17784	.12405	1.43364	-.00272
3.950	12.166	.32711	.09708	-.01700	-.00175	.00021	.00005	.29939	.16383	1.82689	-.00229
3.950	15.261	.43887	.09810	-.01671	-.00098	.00036	.00009	.39757	.21916	1.81375	-.00228
3.950	20.439	.64232	.10171	-.01917	-.00094	.00715	.00014	.56537	.31951	1.77234	-.00086
3.950	25.639	.87693	.10641	-.02500	.00052	.00128	-.00015	.74454	.47537	1.56622	-.00495
3.950	30.841	1.13312	.11224	-.03703	-.00081	.00105	-.00004	.91535	.67727	1.35154	-.00297

UPWT-1117(LA-46B)ORBITER (B1WVS0C4E1F1) (GH9033)

PARAMETRIC DATA

BETA = .000 ELEVTR = 10.000
BDFLAP = 16.300 SPDBRK = 55.000

RUN NO. 44/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
4.600	-1.014	-.04564	.09614	-.02662	.00325	-.00054	.00000	-.04393	.09693	-.45326	-.00492
4.600	.706	-.03752	.09533	-.02611	.00366	-.00046	.00000	-.03634	.09578	-.37945	-.00512
4.600	.309	-.01560	.09337	-.02407	.00413	-.00023	.00002	-.01610	.09528	-.17263	-.00514
4.600	1.826	.00643	.09246	-.02152	.00544	-.00041	.00008	.00429	.09259	.04636	.00491
4.600	2.343	.03007	.09138	-.01903	.00669	-.00018	-.00001	.02531	.09253	.28436	.00547
4.600	4.381	.07903	.08920	-.01517	.00658	.00044	.00016	.07199	.09497	.75795	.00557
4.600	8.457	.18708	.08543	-.01445	.00556	.00002	.00008	.17248	.11201	1.53984	.00559
4.600	12.541	.31059	.08666	-.01442	.00280	-.00028	.00021	.28436	.15203	1.87041	.00471
4.600	15.699	.41635	.08883	-.01542	.00440	.00016	.00012	.37719	.19758	1.90854	.00565
4.600	20.750	.61387	.09495	-.01694	.00443	.00004	.00021	.54041	.30629	1.76439	.00443
4.600	25.889	.83754	.10183	-.02361	.00512	.00013	.00006	.70602	.45731	1.55041	.00505
4.600	31.060	1.08809	.10921	-.03112	.00587	.00023	.00043	.87575	.65493	1.33717	.00473

UPWT-1117(LA-46B)ORBITER (B1WVS0C4E1F1) (GH9034)

PARAMETRIC DATA

BETA = 5.000 ELEVTR = 10.000
BDFLAP = 16.300 SPDBRK = 55.000

RUN NO. 41/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
2.500	-1.681	-.05371	.14271	-.02783	-.10601	.00664	-.00597	-.04959	.14422	-.34319	5.13144
2.500	-1.329	-.04146	.14237	-.02716	-.10428	.00659	-.00592	-.03815	.14339	-.26623	5.12970
2.500	-.283	-.00618	.14134	-.02676	-.10027	.00564	-.00608	-.00549	.14137	-.03881	5.12592
2.500	.758	.02626	.14087	-.02679	-.09897	.00589	-.00613	.02440	.14129	.17277	5.12705
2.500	1.803	.06097	.14044	-.02661	-.09857	.00555	-.00564	.05553	.14229	.39026	5.12608
2.500	3.889	.13132	.13942	-.02579	-.09269	.00492	-.00712	.12157	.14850	.82137	5.12416
2.500	8.085	.28098	.13638	-.02454	-.08988	.00412	-.00939	.25901	.17454	1.48393	5.12065
2.500	12.297	.43372	.13254	-.02387	-.09952	.00333	-.01155	.40043	.22293	1.79618	5.12179
2.500	15.451	.55391	.13066	-.02386	-.09257	.00202	-.01228	.50872	.27517	1.84205	5.12907
2.500	20.723	.78702	.12654	-.02842	-.07068	-.00299	-.01204	.69129	.39593	1.74159	5.12371
2.500	26.019	1.02508	.12385	-.03025	-.05797	-.00969	-.01246	.85775	.55124	1.54515	5.13228
2.500	31.322	1.28102	.12239	-.04489	-.04709	-.01357	-.01435	1.03039	.77199	1.33544	5.13344

UFMT-1117(LA-46B)ORBITER (B1WVS0C4E1F1) (RHG034)

PARAMETRIC DATA

BETA = 5.000 ELEVTR = 10.000
BDFLAP = 16.300 SPDBRK = 55.000

RUN NO. 43/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
3.950	-1.526	-.05891	.11041	-.03025	-.08715	.00554	-.00538	-.03594	.11194	-.49377	5.08212
3.950	-1.175	-.05120	.10985	-.03018	-.08664	.00529	-.00544	-.04893	.11088	-.44132	5.08260
3.950	-.150	-.02543	.10826	-.02898	-.08334	.00532	-.00586	-.02515	.10832	-.23216	5.08041
3.950	.873	.00029	.10629	-.02745	-.08061	.00535	-.00540	-.00133	.10629	-.01249	5.07871
3.950	1.897	.02780	.10470	-.02589	-.07902	.00572	-.00706	.02432	.10556	.23036	5.07715
3.950	3.945	.08182	.10195	-.02480	-.07586	.00528	-.00773	.07461	.10734	.69505	5.07652
3.950	8.050	.19564	.09383	-.02309	-.07562	.00438	-.00910	.17987	.12525	1.43604	5.07688
3.950	12.161	.32618	.09825	-.02112	-.06936	.00269	-.00991	.29816	.16476	1.80971	5.07414
3.950	15.260	.43377	.09955	-.02048	-.06495	.00114	-.01077	.39228	.21021	1.86615	5.07521
3.950	20.438	.63569	.10244	-.02062	-.05712	-.00132	-.01212	.55931	.31795	1.76159	5.07540
3.950	25.628	.86469	.10749	-.02658	-.04933	-.00418	-.01193	.73315	.47089	1.55693	5.07524
3.950	30.828	1.11878	.11369	-.03832	-.04479	-.00613	-.01221	.97245	.67085	1.34501	5.07774

RUN NO. 45/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
4.600	-1.034	-.04502	.09975	-.02482	-.07613	.00416	-.00515	-.04321	.10055	-.42976	5.04504
4.600	-.707	-.04096	.09926	-.02507	-.07721	.00363	-.00519	-.03973	.09976	-.39829	5.04714
4.600	.304	-.01802	.09731	-.02349	-.07422	.00364	-.00558	-.01854	.09721	-.19069	5.04579
4.600	1.325	.00649	.09524	-.02140	-.07178	.00406	-.00610	.00428	.09538	.04490	5.04409
4.600	2.340	.02917	.09362	-.02150	-.07101	.00349	-.00649	.02532	.09473	.26729	5.04548
4.600	4.379	.08073	.09075	-.01816	-.06744	.00366	-.00747	.07357	.09665	.76116	5.04569
4.600	8.449	.18497	.08836	-.01645	-.06625	.00236	-.00848	.16998	.11458	1.48348	5.04578
4.600	12.535	.30871	.08889	-.01575	-.05926	.00048	-.00870	.28206	.15377	1.83425	5.04119
4.600	15.607	.41197	.09055	-.01554	-.05270	-.00162	-.00826	.37241	.19806	1.88020	5.04177
4.600	20.741	.61051	.09646	-.01673	-.04740	-.00263	-.00982	.53588	.30545	1.75194	5.04104
4.600	25.888	.83116	.10415	-.02648	-.04416	-.00544	-.00980	.73227	.45659	1.53805	5.04441
4.600	31.046	1.08003	.11098	-.03318	-.03907	-.00624	-.01012	.85908	.65209	1.33123	5.04345

UPWT-1117(LA-46B)ORBITER (B1WVS0C4E1F1) (FMG035)

PARAMETRIC DATA

BETA = .000 ELEVTR = -40.000
BDFLAP = 11.799 SPDBRK = 55.000

RUN NO. 46/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
2.500	-1.682	-.20313	.17842	.07386	-.00085	.00085	-.00017	-.19780	.18430	-1.07325	-.00583
2.500	-1.321	-.19055	.17741	.07357	-.00046	.00105	-.00006	-.18641	.18175	-1.02565	-.00677
2.500	-.274	-.15497	.17386	.07264	.00001	.00119	-.00008	-.15414	.17469	-.88269	-.00709
2.500	.768	-.11662	.17836	.07082	.00062	.00135	-.00025	-.11689	.16878	-.79444	-.00765
2.500	1.819	-.08072	.16830	.07071	.00110	.00137	-.00024	-.08668	.16567	-.51909	-.00757
2.500	3.904	-.00637	.16315	.07092	.00017	.00139	-.00024	-.01747	.16234	-.10759	-.00544
2.500	8.102	.14452	.15120	.07419	-.00194	.00122	-.00043	.12177	.17006	.71602	-.00582
2.500	12.325	.30075	.14008	.08112	-.00100	.00070	-.00079	.26392	.20155	1.31268	-.00447
2.500	15.480	.42455	.13099	.08478	-.00180	.00078	-.00050	.37419	.23956	1.56201	-.00265
2.500	20.776	.63737	.11716	.09488	-.00101	.00094	.00058	.55437	.33563	1.65175	-.00359
2.500	26.072	.85290	.10728	.10744	.00005	.00115	.00051	.71895	.47121	1.52577	-.00534
2.500	31.395	1.08535	.09592	.12062	.00048	.00114	-.00054	.87648	.64728	1.35409	-.00481

RUN NO. 48/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
3.950	-1.506	-.13453	.12958	.01882	.00479	.00132	.00037	.13197	.13307	.98500	-.00017
3.950	-1.180	-.12698	.12817	.01859	.00450	.00124	.00045	.12432	.13076	.95074	-.00047
3.950	-.154	-.09764	.12384	.01850	.00584	.00149	.00036	.09730	.12419	.78359	-.00047
3.950	.871	-.07285	.12113	.02001	.00525	.00124	.00027	.07468	.12001	.62227	-.00055
3.950	1.895	-.04597	.11847	.02184	.00652	.00129	.00024	.04987	.11688	.42664	-.00052
3.950	3.942	.00918	.11389	.02634	.00754	.00199	.00083	.00133	.11425	.01166	-.00061
3.950	8.056	.12547	.10427	.03042	.00639	.00127	.00021	.10962	.12082	.90723	-.00043
3.950	12.187	.24953	.09917	.03993	.00628	.00153	.00020	.22297	.14951	1.49132	-.00150
3.950	15.281	.34999	.09621	.05016	.00631	.00185	.00011	.31226	.18505	1.68744	-.00050
3.950	20.460	.53209	.09238	.06762	.00718	.00121	.00003	.46524	.27254	1.71079	-.00052
3.950	25.664	.73483	.09062	.08535	.00565	.00138	.00030	.62309	.39994	1.55797	-.00048
3.950	30.879	.96111	.08821	.10061	.00548	.00140	-.00029	.77951	.56897	1.37029	-.00734

LA46 A/B TABULATED SOURCE DATA

UPWT-1117 (LA-46B) ORBITER (B1WVS9C4E1F1) (RHG035)

PARAMETRIC DATA

BETA = .000 ELEVTR = -40.000
BDFLAP = -11.700 SPDBRK = 55.000

RUN NO. 50/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
4.600	-1.042	-.10670	.11509	.00982	.00763	.00086	.00062	-.10459	.11702	-.89383	-.02966
4.600	-.710	-.09767	.11350	.00985	.00969	.00092	.00054	-.09626	.11470	-.83922	-.02997
4.600	.301	-.07272	.10979	.01092	.00949	.00078	.00050	-.07339	.10941	-.66995	-.02978
4.600	1.321	-.04686	.10713	.01159	.01006	.00085	.00047	-.04932	.10602	-.46522	-.02955
4.600	2.345	-.02267	.10442	.01316	.00985	.00070	.00043	-.02693	.10341	-.26041	-.02831
4.600	4.381	.02873	.09912	.01726	.01222	.00150	.00011	.02107	.10103	.20855	-.03051
4.600	8.460	.13263	.09036	.02301	.01039	.00081	.00035	.11789	.10889	1.08270	-.02954
4.600	12.557	.24434	.08729	.03384	.00744	.00078	.00034	.21951	.13833	1.58689	-.02893
4.600	15.624	.33985	.08565	.04370	.00968	.00106	.00019	.30422	.17401	1.74826	-.03000
4.600	20.762	.51511	.08543	.06259	.01091	.00084	.00009	.45138	.26248	1.71965	-.02944
4.600	25.923	.71111	.08572	.08083	.01027	.00081	-.00011	.60209	.38796	1.55193	-.02886
4.600	31.089	.92601	.08571	.10120	.01116	.00091	.00007	.74875	.55156	1.35752	-.02866

UPWT-1117 (LA-46B) ORBITER (B1WVS9C4E1F1) (RHG036)

PARAMETRIC DATA

BETA = 5.000 ELEVTR = -40.000
BDFLAP = -11.700 SPDBRK = 55.000

RUN NO. 47/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
2.500	-1.693	-.20287	.17643	.05724	-.19377	.01019	-.00310	-.19755	.18237	-1.08326	5.12187
2.500	-1.327	-.18079	.17530	.05716	-.19736	.01004	-.00319	-.18068	.17965	-1.00356	5.12091
2.500	-.292	-.15051	.17202	.05687	-.15408	.00917	-.00061	-.15263	.17280	-.88330	5.12174
2.500	.708	-.11591	.16099	.06500	-.10041	.00892	.00386	-.11814	.16744	-.70553	5.11766
2.500	1.092	-.07952	.16023	.05509	-.09088	.00048	-.00409	-.08471	.15370	-.51749	5.11819
2.500	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.00352	-.00462	.01059	[illegible]	[illegible]	5.11327
2.500	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	5.10967
2.500	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2.500	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.56617	[illegible]
2.500	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.30387	[illegible]	[illegible]
2.500	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2.500	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.64019	[illegible]	[illegible]

UFWT-1117(LA-46B)ORBITER (B1WS9C4E1F1) (RHG936)

PARAMETRIC DATA

BETA = 5.000 ELEVTR = -40.000
BDFLAP = -11.700 SPDBRK = 55.000

RUN NO. 49/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
3.950	-2.546	-.13839	.13151	.01743	-.08607	.00999	.00853	-.13479	.13520	-.99701	5.08917
3.950	-1.186	-.12973	.13149	.01779	-.08611	.00999	.00012	-.12698	.13415	-.94652	5.08588
3.950	-.160	-.10049	.12596	.01751	-.08228	.00970	-.00056	-.10014	.12624	-.79324	5.08695
3.950	.869	-.07192	.12265	.01896	-.07940	.00987	-.00119	-.07378	.12155	-.60696	5.08531
3.950	1.899	-.04489	.11963	.01904	-.07811	.01006	-.00196	-.04881	.11809	-.41335	5.08453
3.950	3.948	.01310	.11329	.02198	-.07268	.00926	-.00309	.00527	.11393	.04626	5.08293
3.950	8.051	.12528	.10528	.02762	-.07046	.00796	-.00473	.10930	.12179	.89744	5.08252
3.950	12.178	.24641	.09975	.03774	-.06660	.00538	-.00597	.21982	.14949	1.47059	5.08413
3.950	15.274	.34619	.09682	.04833	-.06165	.00418	-.00706	.30846	.18461	1.67089	5.08383
3.950	20.452	.52640	.09295	.06696	-.05270	.00112	-.00895	.46074	.27103	1.69999	5.08456
3.950	25.653	.72664	.09106	.08391	-.04590	-.00289	-.00913	.61559	.39666	1.55194	5.08871
3.950	30.866	.95905	.08962	.10121	-.04016	-.00395	-.00954	.76951	.56433	1.36357	5.08737

RUN NO. 51/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
4.600	-1.047	-.10864	.11877	.01115	-.07579	.00768	.00037	-.10645	.12073	-.88174	5.05709
4.600	-.711	-.10128	.11758	.01165	-.07449	.00754	.00015	-.09981	.11883	-.83994	5.05670
4.600	.320	-.07674	.11383	.01226	-.07121	.00694	-.00042	-.07734	.11342	-.68184	5.05642
4.600	1.328	-.05088	.10972	.01246	-.06943	.00678	-.00115	-.05336	.10851	-.49175	5.05629
4.600	2.340	-.02409	.10612	.01309	-.06690	.00661	-.00192	-.02841	.10505	-.27041	5.05561
4.600	4.375	.02659	.10022	.01586	-.06318	.00617	-.00321	.01886	.10196	.18500	5.05493
4.600	8.457	.13253	.09242	.02385	-.05906	.00517	-.00514	.11750	.11091	1.05942	5.05239
4.600	12.545	.24408	.08874	.03367	-.05516	.00259	-.00585	.21898	.13964	1.56818	5.05326
4.600	15.622	.33668	.08708	.04258	-.04965	.00037	-.00612	.30079	.17453	1.72346	5.05484
4.600	20.766	.51155	.08655	.06228	-.04379	-.00136	-.00727	.44763	.26250	1.70554	5.05517
4.600	25.919	.70425	.08727	.07996	-.03868	-.00392	-.00766	.59533	.38623	1.54141	5.05677
4.600	31.084	.91996	.08780	.09904	-.03518	-.00487	-.00772	.74253	.55016	1.34966	5.05724